SOME SAKA DATES IN INSCRIPTIONS:

A CONTRIBUTION TO INDIAN CHRONOLOGY

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ABBREVIATIONS

A. S.	...	Ārya Siddhānta.
Br. S.	...	Brahma Siddhānta.
Ep. Carn.	...	Epigraphia Carnatica.
Ep. (or Epig.) Ind.	...	Epigraphia Indica.
gh.	...	*Ghaṭikās.*
KLISI.	...	Kielhorn's *List of Inscriptions of Southern India* in the *Ep. Indica*, Vol. VII, Appendix.
KLINI.	...	Kielhorn's *List of Inscriptions of Northern India* in the *Ep. Indica*, Vol. V, Appendix.
Ky.	...	Kaliyuga.
p.	...	*Palas.*
S. S.	...	Sūrya Siddhānta.

NOTE

In what follows, unless the contrary is expressly stated, names of Jovian years refer to the southern luni-solar Jovian years :

years of the Śaka, Ky. and other eras refer to the *expired* years of those eras :

saṅkrāntis refer to sidereal *saṅkrāntis* ;

tithis, etc., refer to the expired ones ;

names of lunar months refer to lunar months ;

names of solar months refer to solar months ;

nakshatras refer to *nakshatras* of the equal-space system ;

mean-sign years refer to mean-sign years of the Sūrya Siddhānta with *bīja* ;

northern luni-solar years refer to northern luni-solar years of the Sūrya Siddhānta without *bīja* up to A.D. 1500, and with *bīja* later ;

and terms like 'Phālguna-amāvāsyā' refer to the *amāvāsyā* at the *end* of Phālguna.

The calculations have been made with the help of the tables in Mr. Swamikannu Pillai's *Indian Chronology* ; for calculations with the Brahma Siddhānta, Prof. Jacobi's Special Tables in *Ep. Indica*, Vol. I, have been used.

ERRATA

P. 11, *line* 22, *for* Śurya *read* Sūrya.

Pp. 139, 140, *delete* the last 10 lines on p. 139 and the first 4 lines on p. 140.

INTRODUCTION

Help of inscriptions in reconstructing the History of India.

The history of India has, as is well-known, been laboriously constructed of recent years with the help of literary records, coins and inscriptions. Of these, the inscriptions have offered the most help, not only because they are much more numerous, but also because many of them are dated. For purposes of chronology, inscriptions are, in fact, practically the only help that is available.

These inscriptions dated in terms of the Hindu calendar.

These inscriptions are, however, dated, not according to the European calendar, but according to the Hindu calendar; and one requires the help of specially constructed tables before one can conveniently convert a Hindu date into a European one.

Specially constructed tables required for converting Hindu dates into European ones.

The importance of the subject, however, is such, that the requisite tables were constructed nearly a hundred years ago by Warren. And more recently, tables giving accurate results have been constructed and published by Chhatre, Jacobi, Sewell and Dikshit and Svamikannu Pillai.

Outlines of South Indian Chronology determined by Kielhorn and Fleet.

With the help of such tables, the Hindu dates given in the inscriptions have been converted into European dates and the chronology of the different kings and dynasties determined by a small band of scholars chief among whom must be mentioned Prof. Kielhorn and Dr. Fleet. And the result of the labour of these scholars, so far as South Indian chronology is concerned, can be seen in Dr. Fleet's *Dynasties of the Kanarese Districts* (*Bombay Gazetteer* (1896), Vol. I, Part 2) and in Prof. Kielhorn's *List of Inscriptions of Southern India* (*Epigraphia Indica*,

Vol. VII, Appendix). This latter *List* together with the same scholar's Synchronistic Table for Southern India (in *Epigraphia Indica*, Vol. VIII) published in 1906 presents to us the most up-to-date account of the chronology of Southern India.

Chronology likely to be incorrect if a large number of available dates are not made use of.

All these details of chronology have been, as said above, determined by means of converting in terms of the European calendar the dates cited by the inscriptions in terms of the Hindu calendar. If therefore mistakes have been made in the process of conversion, or if a considerable proportion of dates capable of being computed (and verified) have been neglected, the chronology so constructed will naturally be likely to be not absolutely correct, but to contain a few mistakes. This, in fact, is what has happened in the case of South Indian chronology.

Kielhorn's List of Inscriptions of S. India; number of verifiable dates that he failed to utilise.

The *List of Inscriptions of Southern India* referred to above contains about 1020 numbers of which about 480 contain verifiable dates. Of these 480 dates, about 120 have been pronounced by Kielhorn to be wholly irregular while about 70 have been pronounced by him to be slightly irregular. Concerning these latter, Kielhorn has suggested emendations and given the European equivalents of the emended dates; regarding the former, he has no suggestions to offer respecting the European dates that may have been intended by them. Altogether, therefore, Kielhorn left unutilised more than 120 dates, or more than 25%, out of 480 dates because, according to him, they were 'irregular', that is to say, did not yield satisfactory results for the year, month, and (ending) *tithi* mentioned.

Śaka dates not thoroughly investigated.

The reason for rejecting such a large proportion of dates as 'irregular' lay no doubt in the fact that the question of the computation of dates of the Śaka era had not been so thoroughly investigated as, for example, the question of the computation of dates of the Vikrama era. Kielhorn did

indeed investigate to some extent this question of the computation of Śaka dates and published the results of his investigation in the *Indian Antiquary*, Vol. XXV. But a comparison of this paper with his paper on Vikrama dates (*ibid.* Vol. XIX) shows that his investigation of the former kind of dates is far less thorough than that of the latter kind of dates. The same fact will also be apparent from a comparison of his *List of Inscriptions of Northern India* (*Epigraphia Indica*, Vol. V, Appendix) with his *List of Inscriptions of Southern India* (*ibid.* Vol. VII, Appendix); in the former list, a few dates only have been characterised by him as irregular, whereas in the latter list, a large number of dates have been so characterised.

Occasion for my undertaking such an investigation.

Some months ago, I took on hand the work of compiling a classified index, arranged chronologically, of the inscriptions published in the *Epigraphia Carnatica*; and while computing, in the course of the work, the verifiable dates found therein, I was much disconcerted to find that nearly 40 per cent of such verifiable dates were 'irregular' in the sense above given. Now, how was this irregularity to be explained? That 40 per cent. or even 20 per cent. of the verifiable dates had been wrongly recorded in the inscriptions was an idea that I could not persuade myself to accept. I therefore set myself to find out if these dates, always assuming that they have been correctly transcribed from the inscriptions, could by any means be made to yield satisfactory results. I was successful with the majority of such dates and have therefore set down in the pages that follow the method of dealing with such 'irregular' dates.

Form of investigation.

As an 'irregular' date, that is, a date which did not yield satisfactory results for the year, month, and ending *tithi* cited, cannot, ordinarily, by any amount of computation, be made to yield satisfactory results for the year and month cited, my investigation had necessarily to take the form of an inquiry as to the existence of usages or practices according to which a cited year, month or *tithi* might be made to refer to other years,

months or *tithis*. Incidentally, I had also to determine whether the term *saṅkrānti* could refer to a *saṅkrānti* other than the sidereal *saṅkrānti*, whether the words *Vaḍḍavāra* and *Bṛihavāra* could denote, respectively, weekdays other than Saturday and Thursday, and whether the terms *Vyatīpāta*, *grahaṇa*, etc., were ever associated with occasions on which an eclipse, or Vyatīpāta could not under any circumstance occur.

Usages in vogue in connection with Śaka dates.

The results of this investigation are set down in the sections that follow. Of these, § 19 treats of the usage or practice of citing a year immediately preceding the year actually intended, § 20 of the practice of citing the year that immediately follows the year actually intended and §§22, 23 of the practices of citing the preceding year but one and the following year but one of the year actually intended. These practices, it may be observed in passing, are not peculiar to Śaka dates only but are also found in connection with Vikrama dates (see the *Indian Antiquary*, Vol. XIX, pp. 364, 367, 368). Section 27 treats of the practice of quoting tropical *saṅkrāntis* in dates; this practice was current in Northern (see date No. 109 on p. 63 below) as well as in Southern India. Sections 10-18 treat of the practice of honorifically citing a *grahaṇa*, *vyatīpāta*, *saṅkrānti*, etc., in dates; and § 31 of the practice of using the names of solar months (Mēsha, Vṛishabha, etc.) to denote the corresponding lunar months (Chaitra, Vaiśākha, etc.) and of the names of lunar months to denote solar months. This practice does not seem to have been current in Northern India.

Enumeration of such usages—contents of the book.

Section 8 introduces the reader to a usage which (is not found in Northern India but which) is of great importance to chronologists of Southern India; namely, the practice of citing the Jovian years according to the southern luni-solar system, northern luni-solar system or mean-sign system indifferently, conjoined generally with Śaka

Three systems of Jovian years in use in S. India. Complexity introduced thereby into dates.

years which correspond to the southern luni-solar Jovian year named. Such indifference or carelessness (see however §78 in p. 95 *infra*) in citing the Jovian years and the associated Śaka years introduces an element of complexity into the question of Śaka dates, a complexity which is not lessened, but on the other hand, increased in some instances by the fact that the year intended by the date is the immediately following year or immediately preceding year or the following year but one or the preceding year but one, of the year (northern luni-solar, southern luni-solar or mean-sign, as the case may be) actually cited therein. This practice was much in vogue in the period between the 10th and 14th centuries A. D., and a good number of the dates of this period have been declared irregular by Kielhorn and others owing to their failure to recognise the existence of such a practice.

These sections referred to above lead up to sections 35-82 which deal with the main theme of the book. These sections show in how many ways a given date can be interpreted, that is to say, they show how many different days a given Śaka date (or a date of the Chōḷa type) may denote, and conversely, in how many different ways a particular day may be described in terms of the Hindu calendar.

A Śaka date denotes more than one day.

It may at first sight appear to one as very strange that a date should be capable of denoting more days than one. But any such feelings of strangeness will disappear if one recollects that a date expressed in terms of the European Calendar even (where there is no occasion for *adhika* and *kshaya tithis*, months and *saṁvatsaras* or for current and expired years) does as a matter of fact denote two distinct days. The date 16th December, A.D. 1916, for example denotes according to the new style a day which is a Saturday; while the same date denotes, according to the old style, still in use in Russia, a day which is a Wednesday and

Similarly, European dates;

which is 11 days behind the above day (the 27th December, A.D. 1916, N.S.). Similarly, it has been known from a long time (*Ind. Antiquary*, Vol. XIX, p. 22; *Epigraphia Indica*, Vol. I, p. 406) that a Vikrama date of the ordinary type is capable of denoting from 2 to 6 different days according to circumstances.

and Vikrama dates.

The case of Śaka dates is in no wise different from those of European dates and Vikrama dates. Only, while a European date can denote but two days, and a Vikrama date but 6 or 12 days at the most, an ordinary Śaka date, that is, a date citing the Śaka year, Jovian year, lunar month, *tithi*, and weekday, can denote any one of from 6 to 28 different days; and the interval between the earliest and latest days so denoted may sometimes amount to as much as 10 years (see § 50 in pp. 77, 78 below) or more. The case of dates that cite the regnal year of some king and the weekday together with the lunar month and day of the month or solar month and day of the month, is also similar to the above as every one of such dates is capable of denoting more days than one.

A Śaka date denotes from 6 to 28 different days.

It follows therefore that no Śaka date ought to be declared irregular unless every one of its possible equivalents has been calculated and been found to be unsatisfactory. This however has not been done by Messrs. Kielhorn, Fleet and Svamikannu Pillai who evidently laboured under the impression that a Śaka date, (or date of the Chōḷa type) could denote a single day only; with the result that a large number of dates which are really regular enough have been declared by these scholars to be irregular. Further, in the case of some dates, these scholars not being content with declaring them irregular, have also emended them

Dates pronounced irregular through ignorance of above;

and further emended in some cases needlessly.

according to their own light, computed the European equivalents of such emended dates and by pronouncing that the events recorded in the inscriptions took place on those days have more or less retarded the progress of Indian Chronology.

Harm caused to Indian Chronology by such emendations.

As an instance in point I may refer to the Chōḷa date No. 42 which Kielhorn, in 1899 (*Epigraphia Indica*, Vol. VI, p. 280) assumed, contained a mistake as to the regnal year of the king cited therein, namely, the Chōḷa king Vikrama-Chōḷa. He therefore emended the date in that respect and obtained a result which confirmed him in his opinion that the reign of this king commenced in A.D. 1108. And this continued to be the accepted opinion until in 1902 (*Epigraphia Indica*, Vol. VII, pp. 3-5.) Kielhorn himself acknowledged that there was no need for emendation in the above date, that it was quite correct and that the reign of Vikrama-Chōḷa really commenced in A.D. 1118—ten years later than was first believed.

Instances—

Chōḷa date No. 42.

Another instance is the Pāṇḍya date No. 45 where also Kielhorn has emended the regnal year given in the date, because with his starting-point for the reign of Jaṭāvarman Kulaśēkhara, namely, the year A.D. 1190 (as determined by him from the Pāṇḍya date No. 1), he failed to get satisfactory results for the date No. 45 as it is given in the original. I have shown in the Appendix that is given at the end of this book that the Pāṇḍya date No. 1 has many equivalents, that is to say, that we get more years than one as the possible starting-point of the reign of Jaṭāvarman Kulaśēkhara and that the date No. 45 yields satisfactory results with every one of the years mentioned by me. It is not therefore difficult to see that here also there is no need to emend the date No. 45, that it is quite correct but that the fault really lies in the equivalent proposed by Kielhorn for the date No. 1. That the date No. 45 does not yield satisfactory results in connection with this equivalent for the

Pāṇḍya date No. 45.

date No. 1 does not mean that the date No. 45 is wrong and needs emendation, but that the equivalent proposed by Kielhorn for the date No. 1 is not correct. In this case also, the emendation of the date No. 45 by Kielhorn which confirmed him in his opinion that Jaṭāvarman Kulaśēkhara began to reign in A. D. 1190 has had the effect of throwing the chronology of these Pāṇḍya kings into confusion and of arresting its progress.

Practice of emendation deprecated.

I cannot therefore too strongly deprecate the practice followed by many computers of emending whatsoever dates seem to them to be irregular. The above-cited instances show sufficiently clearly the undesirable consequences that ensue from such a practice even in the hands of such a cautious and careful computer as Prof. Kielhorn. A sample of what such a practice will lead to in the hands of a less careful computer can be seen in Mr. Svamikannu Pillai's paper entitled *On some new dates of Pāṇḍya Kings* in the *Indian Antiquary* (Vol. XLII, pp. 163ff; 221ff.) where he has, on the strength of 10 dates of which he has emended five, postulated the existence of two new Pāṇḍya kings named Jaṭāvarman Vīra-Pāṇḍya with accession-dates A. D. 1189-90 and A. D. 1254. Mr. Sewell on the other hand (in the *Indian Antiquary*, Vol. XLIV; pp. 189ff.), by emending 7 of the above 10 dates but in a manner different to that of Mr. Pillai has come to an exactly opposite conclusion, namely, that these ten dates belong to the reign of the Vīra-Pāṇḍya who began to reign, as determined by Kielhorn, in A. D. 1252-53, and that there is not the slightest need to assume the existence of two new Jaṭāvarman Vīra-Pāṇḍyas. Can a more striking example of the harm wrought by emendations and of the unsubstantiality of the results attained by this method be adduced?

Results of such emended dates, not substantial, and untrust-worthy.

Curiously enough, it does not seem to have struck the mind of either of the chronologists who were engaged in the controversy referred to above that the root of the controversy

lies in this harmful habit of emending all 'irregular' dates. Mr. Sewell, for example, writes (*loc. cit.*, p. 169) that 'it seems hardly safe to alter more than one of the details given in the date and then to build history upon it.' He is accordingly of the opinion that one emendation, provided it is not too violent, is allowable, *i.e.*, does not work harm, in a date; but that more than one emendation, or one emendation even if it is of a violent character is inadmissible. Mr. Svamikannu Pillai, too, has, similarly, put forth some apologies in justification of the practice of emendation in his pamphlet entitled *Hints to workers in South Indian Chronology* (§13; pp. 7, 8.). According to him, our ancestors cared very little for fact, so little indeed, that they have cited in some inscriptions[1], months that were *kshaya* or suppressed, that is to say, months and days that did not occur at all in the year cited. He therefore holds himself free to introduce as many emendations in a date as he likes.

Such pre-conceived ideas that the writers of inscriptions did not pay as much scrupulous attention to the truth

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[1] In No. 525 of 1914; No. 522 of 1915, and No. 136 of 1917, according to Mr. Svamikannu Pillai. It is needless to observe that Mr. Pillai is mistaken and that the dates do not cite *kshaya* months. I give here these dates and their equivalents. These equivalents are only tentative as I cannot make much of the dates in question.

No. 525 (*of* 1914).—Ś. 1181, *Kāḷayukti, Pushya-amāvāsyā, Monday, uttarāyaṇa-saṅkramaṇa-Vyatīpāta and solar eclipse.*

The equivalent seems to be Monday, 23rd January, A.D. 1251; on which day Pushya-amāvāsyā ended and the *saṅkrānti* (Br. S.) took place. The eclipse and Vyatīpāta are honorifically cited as none occurred on that day. The Jovian year was the preceding year but *two* of the mean-sign Kāḷayukti.

For No. 522 of 1915, see No. 23 on p. 15 below.

No. 136 (*of* 1917)—*Śaka* 1199, *Pushya-su* 5, *Monday, Makara-saṅkrānti.*

The name of the Jovian year—Īśvara—left out in the inscription must be supplied here. The equivalent is Monday, 26th December, A.D. 1272. On this day, Pushya-su 5 ended and with this day was associated the *saṅkrānti* which occurred at about 45 *gh.* after mean sunrise of the preceding Sunday. The Jovian year current was the *northern* luni-solar Īśvara.

as we do and that therefore we are at liberty to emend the dates as we like, are, in my opinion, most unfortunate and likely to prove a great hindrance to the progress of true chronology. When, *ex hypothesi*, the date of the inscription is unreliable, how can one maintain that the other facts furnished by the inscription are reliable?

Some dates are irregular and *do* stand in need of emendation;

It is not however my opinion that all the dates that we meet with, cited in the inscriptions are correct and that none of them is in need of emendation. On the contrary, it is evident that dates like Nos. 241 and 242 (see pp. 146, 147 below) which cite a *nakshatra* in connection with a month and *tithi* in which no such association can under any circumstance take place, contain some mistake and are in need of emendation. Similarly dates like No. 239 (see p. 144 below) where wrong Śaka years and Jovian years are associated together, and dates like No. 240 (p. 145 below) or No. 237 (p. 143 below) where *saṅkrāntis* and *yōgas* are wrongly associated with months, would be the better for being emended.[1] But even in these and other such instances, there is no practical utility in making emendations in dates as the equivalents got at by computing emended dates are wholly unreliable owing to the fact (which we saw above) that dates can be so emended by different chronologists as to lend support to different, mutually conflicting, conclusions[2].

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[1] Similarly, I am convinced that the Chōḷa date No. 100 needs to be emended in respect of the Jovian year named therein. It is my opinion (see p. 154 below) that Kielhorn has done wrong in accepting this date as correct in all details and in postulating a new and unknown Chōḷa king on the sole strength of this date. *Cf.* Mr. Sewell's remarks on this point in the *Indian Antiquary*, Vol. XLIV, p. 168.

[2] Regarding the emendations that I have myself made in the dates Nos. 235-247 below (see pp. 145-150), I must explain that I was not, at the time I wrote those pages, so fully aware of the evils of emendation as I am now.

As regards the dates that have been declared irregular by Messrs. Kielhorn, Svamikannu Pillai, Fleet and others, the various usages described in the following pages enable us to find out the equivalents of the majority of such dates without emending them in any respect. It is thus possible by means of a knowledge of these usages to show that the great majority of the so-called irregular dates are fairly regular and to find out the correct equivalents of these 'irregular' dates. I have thus given in the pages that follow the correct equivalents of a good number of 'irregular' dates contained in Kielhorn's *List of Inscriptions of Southern India* (*Epigraphia Indica*, Vol. VII, App.) and in the various volumes of the *Epigraphia Carnatica*. I have also occasionally given the equivalents of some 'irregular' dates contained in the *Epigraphia Indica* and in the recent reports of the Madras Epigraphist. These latter contain a good number of such 'irregular' dates so that it was not possible for me to give the correct equivalents of all of them. I had therefore to confine myself to the citation of a few interesting examples to which I here add a few more in the note given below.[1]

but, a good majority of the dates that have been described as irregular are not really so.

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[1] No. 118 of 1913—Chā. Vi. 4, Kāḷayukti, Māgha-su 5, Sunday, uttarāyaṇa-saṅkrānti-Vyatīpata.

Sunday, 21st January, A. D. 1078. (Previous year; Br. S. Saṅkrānti).

In an inscription at Iṭṭagi (Ins. A., in *Ep. Indica*, Vol. XIII) *Chā. Vi.* 37 *Nandana, Bhādrapada-su* 15, *Sunday, saṅkrānti-Vyatīpāta and lunar eclipse.*

Thursday, 28th August, A.D. 1113. (Following year, visible eclipse; *saṅkrānti* associated with that day; weekday wrongly cited in the original).

In another inscription (*ibid.*, B.).

(*a*) *2nd year of Saṅkama, Vilambin, Āśvayuja-amāvāsyā, Sunday.*

Sunday, 23rd October, A.D. 1177. (Previous year).

(*b*) '*on a day of lunar eclipse, saṅkrānti and Vyatīpāta.*'

29th August, A.D. 1178 (invisible eclipse; *saṅkrānti* associated with that day).

In an inscription at Harasur (p. 461 of Fleet's *Dynasties*,

On the other hand, they point to a more correct chronology.

We have seen in the instances cited above how the dates that were needlessly emended by Kielhorn point to a more correct chronology. In the same way, there are some dates that have been characterised as irregular by Kielhorn in his *List of Inscriptions of Southern India* that similarly point to a more correct chronology. The earliest date of the W. Chālukya Jayasiṁha II, for example, has been given by Kielhorn (*Epigraphia Indica*, Vol. VIII, App. II, p. 7 as well as the Synchronistic Table for Southern India contained therein) as A.D. 1018. The date No. 152 (*KLISI*) whose correct equivalent, as I have shown below (p. 128, No. 203) is 22nd December, A.D. 1017 shows that that king was reigning in A.D. 1017. Similarly, the earliest date given by Kielhorn (*loc. cit.*) for the W. Chālukya Sōmēśvara I is A.D. 1044. In this case, too, the date No. 159 (*KLISI*) whose equivalent is, as I have shown below (p. 129; No. 204)

Instances.

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of the Kanarese Districts).

12th year of Taila III, Vishu, Vaiśākha-amāvāsyā, Monday and solar eclipse.

Monday, 31st March, A.D. 1158 (Northern luni-solar Vishu; invisible eclipse).

No. 1 of the Madras Epigraphist's collection for 1915:—

Ś. 1460, Vilambin, 14th day of Paṅguni, Monday pūrṇimā and uttarā-phalgunī.

Monday, 10th March, A D. 1533 (following year but one of northern luni-solar Vilambin).

No. 527 of 1915—*Ś. 1457, Jaya, Pushya-su* 3, *Monday and saṅkrānti.*

Monday, 27th December, A.D. 1535 (following year; Br. S. *saṅkrānti*).

No. 488 of 1914—*Ś. 1184, Dundubhi, Chaitra-amāvāsyā, Monday, solar eclipse.*

Monday, 12th April, A.D. 1260 (Preceding year but one; visible eclipse).

No. 494 of 1914—*Chā. Vi.* 32, *Sarvajit, Chaitra-amāvāsyā, Monday, eclipse and Vishuva-saṅkrānti.*

Monday, 25th March, A.D. 1107 (No eclipse; eclipse honorifically mentioned).

23rd January, A.D. 1043 shows us that that king was reigning in Ś. 964 or A.D. 1042-43.

Utility of the book

A knowledge therefore of the usages treated of in this book is of much utility, primarily, in enabling one to calculate and to make use of the correct equivalents of a greater number of dates, including those that would otherwise have been rejected as irregular. The equivalents so got will in many cases help to improve and to make more correct the chronologies of many South Indian dynasties and will also be the means of solving many vexing problems of overlapping reigns [1].

in helping to improve and make more correct S. Indian Chronology

and by solving many problems of overlapping reigns.

On the other hand, it must also be conceded that these usages introduce an element of uncertainty into dates which have up to this time been regarded as yielding certain results. This is indeed unfortunate but there does not seem to be any help for it; for it is not without reason that Indian almanac-makers (*jyautishikas*) insist that the 'five elements' (*pañcha aṅgāni*) of measuring time should be cited in connection with each day. If the inscriptions, therefore, in citing dates, had, instead of giving merely the Śaka year, Jovian year, lunar month, *tithi* and weekday, given in addition the *nakshatra*, *yōga* and *karaṇa*, there would not have been the least doubt (see p. 6 below; No. 7) as to the day that was intended. But the majority of inscriptions have not done so; and the week-day being the only verifiable detail in the dates cited by them, such dates denote more than one day and thus leave the

Some disadvantages—

due to the dates not citing the 'five elements.'

[1] As an instance, I may refer to a Baḷagāmve inscription (No. 230 in Kielhorn's *List of Inscriptions of S. India*) of the reign of the W. Chālukya Sōmeśvara III Bhūlōkamalla which is looked upon with suspicion by Dr. Fleet (*Dynasties of the Kanarese Districts*, p. 455, note 6) because the day indicated by the date falls in the reign of Jagadēkamalla II, successor of Sōmēśvara III. I have shown below (p. 141, No. 233) that the equivalent of this date is 26th December, A. D. 1137, a day which falls well within the period of Sōmēśvara III's reign.

chronologist in uncertainty as to which day is really intended by the date. Fortunately however, the uncertainty can, in many cases, be got rid of and the day intended determined by the help of historical considerations.

'Forged' grants—

Among the many dates declared irregular by Kielhorn in his *List of Inscriptions of Southern India* are some that are contained in copper grants which have been pronounced by Dr. Fleet to be spurious. In thus pronouncing them to be spurious, Dr. Fleet, I cannot help thinking, must have been primarily moved thereto by the 'irregularity' of the dates cited therein, though, no doubt, he must have found other considerations such as bad execution, wrong genealogies, wrong *birudas*, discordant palæography, etc., (see his paper in the *Indian Antiquary*, Vol. XXX, pp. 201 ff.) of help in confirming his opinion.

with dates tolerably regular.

Some of these dates, it is interesting to note, are tolerably regular as I have shown below (see Nos. 168, 169, 170, 171, 230, 235, 236, 252 and 253 below); and it now rests with competent scholars who can appreciate the other considerations (*e.g.*, palæography, genealogies, *birudas*, etc.) involved to examine these grants anew unhampered by considerations that the dates cited therein are irregular.

Some desiderata:—

I think it expedient to point out here that this book does not deal with *all* the various usages that were observed in connection with Śaka and other dates. I am convinced that many other usages, besides those treated of in this book, were in vogue and that at least some of them can be brought to light by a patient examination of all available verifiable dates. It is therefore desirable that some one will undertake this investigation which is sure to be fruitful.

Other such usages should be brought to light.

It will be seen that in calculating the equivalents of many of the dates given in this book I have frequently made use of the Brahma Siddhānta—especially as regards the determination of the moment of *saṅkrānti* and the

commencement of mean-sign Jovian years. I am therefore led to conclude that the Brahma Siddhānta was more frequently used for purposes of calculation in the period between the 9th and 14th centuries A.D. than has been until now believed. It is also not unlikely that not only *saṅkrāntis* and Jovian years but *tithis* and *nakshatras* also were calculated by means of this Siddhānta. A set of tables therefore on the model of Tables X, IX, XIV, etc., of Mr. Svamikannu Pillai's *Indian Chronology*, but calculated for the Brahma Siddhānta would be a great boon to computers and would enable them to find out the equivalents of many dates which would otherwise be given up as being unsatisfactory. It is also desirable that in future editions of books on Indian Chronography *all* the solar eclipses that took place should be shown irrespective of whether they were visible or invisible in India; for, as I have shown below (pp. 20—22), Indian inscriptions cite not only visible eclipses but invisible ones also.

Tables to be compiled according to the Brahma Siddhānta.

All solar eclipses visible as well as invisible to be shown.

A third desideratum is a search for, and the publication of, all Muhammedan dates that are cited by the side of synchronous Hindu dates. I have shown (on p. 79 below) how the Muhammedan date of the Malkapuram inscription (No. 153 of the Madras Epigraphist's collection for 1913) which is cited by the side of its synchronous Hindu date (in No. 152 of the same collection) offers direct proof of the use in Southern India of northern luni-solar Jovian years, in association with a Śaka year that corresponds to the southern luni-solar Jovian year named. The publication, therefore, of all such synchronous dates [1] as are to be

Publication of all Muhammedan dates that are cited by the side of synchronous Hindu dates.

[1] I may here notice such a synchronous Muhammedan date published in the Madras Epigraphist's Report for 1916. This inscription—No. 1 in App. D. of that report—is dated in 982 A.H. (see p. 153 of that report) and records the remission of certain taxes for a period of twelve years—from 975 A.H. till 986 A.H.

Underneath the above Arabic inscription is engraved a Kanarese

found will, I am confident, bring to light many usages that were in vogue in respect of Hindu *and* also Muhammedan dates (see footnote on p. 79 below).

Explanation for citing Kanarese, Sanskrit and Telugu dates in the original.

In conclusion, I have to offer an explanation to such of my readers as do not understand Kanarese, Telugu and Sanskrit for citing in this book the dates in their original form instead of (as has been done in the case of Tamil dates) translating them into English. In this, I have but followed the example of Kielhorn who has done likewise in his *List of Inscriptions of Southern India* referred to above. As however the details of such dates will become clear by the explanation of the equivalents given underneath, the difficulty experienced by the above class of readers will, I trust, be easily overcome.

5th January, 1918
Bangalore.

A. VENKATASUBBIAH

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inscription (No. 528 of 1915) which records the grant, in the year Yuvan, of a *cowl* exempting the people from paying certain taxes for a period of twelve years. This period of twelve years has not been specified and should therefore be taken to begin from the year the *cowl* was granted—that is, from the year Yuvan.

The year 975 A.H. corresponds to A.D. 1567; and the year Yuvan, too, by the northern luni-solar system, corresponds to A.D. 1567. It is therefore evident that the year Yuvan cited in the inscription is the *northern* luni-solar year and not the southern luni-solar one. The opinion therefore of Mr. Krishna Sastri, who being misled by the accident that the southern luni-solar Yuvan corresponds in part to 982 A.H. (there are about 30 days common to both the Muhammedan and the Hindu years named) thinks (*Madras Epigraphist's Report for* 1916; p. 153) that the Kanarese inscription too was engraved on stone in the year 1574-75 A.D. is a mistake. This becomes quite clear from a comparison of the Kanarese date which cites a *tithi* (Vaiśākha-ba 3) which did not fall at all in the year 982 A.H. but which fell in the year 983 A.H.

SOME ŚAKA DATES IN INSCRIPTIONS

Eras in use in South Indian Inscriptions

1. The inscriptions of Southern India are for the most part dated in the Śaka era, the epoch of which is the year A.D. 78. According to Dr. Fleet, the earliest genuine Śaka date found in an inscription is Ś. 500 cited in the Bādāmi cave inscription of Maṅgalēśa and the earliest genuine Śaka date in a literary record is Ś. 427 in the *Pañchasiddhāntikā* of Varāhamihira. Inscriptions and literary records that cite an earlier Śaka year are therefore adjudged by him to be either wholly spurious, *i.e.*, written at a considerably later date, or to have been retouched later when the detail about the Śaka year must have been added. Of the dated inscriptions of Southern India the number of those citing the Śaka year is, it has been calculated by Kielhorn, a little more than 90 per cent.

Of the remaining dated inscriptions, a few—from Travancore and Malabar—are dated according to the Kollam era, the epoch of which is A.D. 825, and the rest in the Chālukya Vikrama and other eras or in the regnal years of kings or in years of the Kali-yuga.

2. The Chālukya Vikrama era is nothing else but the regnal year of the W. Chālukya Vikramāditya VI Tribhuvanamalla who became king in A.D. 1076,[1] and started an era of his own from that year. This era continued to be used sporadically for more than 100 years after its commencement after which period it lapsed into desuetude.

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[1] See, however, § 61 below.

As a matter of fact, the era ceased to be generally used after the death of the founder; for his successors, too, set up eras of their own which were in use as long as they were reigning; and this practice was followed by the great feudatories also of the Chālukyas after they had asserted their independence of the latter. We therefore find in the period A.D. 1076—1300 about 12 or more eras in use at different times. The chief of these eras, excluding that of Chālukya Vikrama, were those of the W. Chālukyas Bhūlōkamalla, Jagadēkamalla, Trailōkyamalla and Tribhuvanamalla, the Kaḷachuryas Bijjala or Tribhuvanamalla, Sōvidēva, Saṅkama, Āhavamalla and Siṅghaṇa, the Hoysaḷa Ballāḷa II, the Dēvagiri-Yādavas Siṅghaṇa, Kandhara, Mahadēva and Rāmachandra, and the Kādambas Kīrttidēva, Kāmadēva, Barmadēva and Mallidēva.

These eras as already stated are nothing else but the regnal years of the respective kings or feudatories, and were in use in their territories only. Thus all these eras are met with in the Kanarese country only; and even there, the Śaka era continued to be in general use, so that in many inscriptions we find the Śaka year as well as the years of these eras cited together.

A small number of inscriptions are dated in years of the Kali-yuga era whose epoch is 3102 B.C.

Jovian Years

3. The Jovian years or years of Bṛihaspati, are sixty in number and are called Prabhava, Vibhava, etc. As a general rule they are cited along with the corresponding Śaka years in inscriptions. There are however some inscriptions which cite the Śaka year only without the Jovian year; and there are again a number of other inscriptions which cite the Jovian year only and not the Śaka year.

4. The verifiable dates in South Indian inscriptions cite, as a rule, the Śaka year or what comes to the same thing, the year of one of the other eras mentioned above with the corresponding Jovian year, the lunar month and *tithi* of the same, together with the weekday. And a certain

number of inscriptions quote in addition one or more of the following details—namely, the *nakshatra*, *yōga*, *karaṇa*, solar month and solar day and eclipses, if any, that took place on the day. There exist also some inscriptions which give the position of the planets—Jupiter, Venus or Saturn—for the day cited.

5. The verifiable dates of the Pāṇḍyas and Chōḷas however differ in character from those of the Kanarese and Telugu inscriptions. Their inscriptions do not as a rule quote the Śaka or Kali-yuga era; nor do they quote the Jovian year. They cite the regnal year of the king, the solar month and sometimes the day thereof, the lunar *tithi*, weekday and the *nakshatra*. They do not give the genealogies of kings as the other inscriptions do. The consequence therefore is that the chronology of the Pāṇḍyas and the Chōḷas has to be determined chiefly by means of astronomical calculations. As the results of such calculations come out differently according as we use the Sūrya, Ārya or Brahma Siddhānta, there is thus an element of uncertainty in the chronology of the Chōḷa and Pāṇḍya kings.

6. It is my purpose here to make a few remarks about, and to give the correct European equivalents of, many Śaka dates that have been after examination pronounced 'irregular' by Kielhorn and other scholars or that I myself have found to be 'irregular.' The term Śaka dates includes for my purpose the dates expressed in the various eras above mentioned, and in Jovian years only without the Śaka or any other era being used in connection therewith. I shall give first the remarks I have to make under convenient headings, and give the 'irregular' dates with their equivalents as calculated by me, afterwards at the end. These remarks should be taken as a continuation of those made by Kielhorn on the same subject in the *Indian Antiquary*, Vol. XXV, p. 266ff.

Northern Luni-solar and Mean-sign Jovian Years

7. I have already stated above that the majority of the dated Śaka inscriptions quote in addition to the Śaka

year, the Jovian year corresponding to it. These Jovian years, it was supposed[1] by Kielhorn, were cited according to the southern luni-solar system of Jovian years. This opinion however is erroneous as it is based on an insufficient examination of the available dates. I have examined a good number of dates in which Jovian years are mentioned, and I find that though in the majority of instances the Jovian years cited belong to the southern luni-solar system, there are still many instances where the Jovian years are cited according to the northern luni-solar or mean-sign system. The inference therefore to be drawn from this examination is, that the Jovian years are cited in the South Indian inscriptions according to all the three systems, and that the three systems of naming Jovian years were in use side by side, at the same time and place.

8. As can be expected, there is some confusion or irregularity in some dates as a natural consequence of these three different systems being in use at the same time and place. We therefore not only find dates in which (A) southern luni-solar Jovian years are cited with Śaka years corresponding to them, and (B) northern luni-solar and mean-sign Jovian years are cited with the Śaka years corresponding to them; but we also find dates in which (C) southern luni-solar Jovian years are cited with the Śaka years corresponding to the mean-sign or northern luni-solar Jovian year of the same name, and (D) northern luni-solar or mean-sign Jovian years are cited with the Śaka years corresponding to the southern luni-solar Jovian year of the same name. Naturally, the last two classes of dates can be discovered to be such only after an examination of the dates. Examples of dates of class (A) are numerous and need not be adduced here; so I give here some examples of dates of the three other classes:—

For Class (B):—

1.—*Ep. Carn.* VIII, Sb. 80; p. 23[1], 33[3]. Chitraṭahaḷḷi *vīrakal* of the time of the Kadamba Mayūravarman:—

[1] *Ind. Ant.*, Vol. XXII, p. 109; Vol. XXV, p. 266.

[Śaka*]-kāla 1051 neya Virōdhikṛitu-saṁvatsarada Kārttika-su 3 Vaḍḍavārad=andu.

Ś. 1051 current=Virōdhikṛit by the northern luni-solar system; in this year, Kārttika-su 3 commenced at 29 *gh.* 39*p.* after mean sunrise on **Saturday, 27th October, A.D. 1128.**

2.—*Ep. Carn.* VIII, Sb. 94; p. 25[1], 37[3]. A *vīrakal* at Bilavāṇi:—

Śaka-varushada 1197 neya Pramādi-saṁvatsarada Chaitra-su 5 Ādityavārad=andu.

Ś. 1197 current=Pramāthin by the northern luni-solar system; in this year, su-5 of the Chaitra at the end began at 19*gh.* 40*p.* after mean sunrise on **Sunday, 3rd March, A.D. 1275.**

3.—*Ep. Carn.* IV, Kr. 74; p. 184[1]—7; 315[3]—34. Nēraḷakaṭṭe stone inscription of the time of the Hoysala Vishṇuvardhana:—

Śaka-varusha 1059 neya Raudri-vatsarada Kārttika-suddha 5 pañchami Bṛihaspativārad=andu.

Ś. 1059=Raudri by the northern luni-solar system; in this year, Kārttika-su 5 ended at 10 *gh.* 37*p.* after mean sunrise on **Thursday, 21st October, A.D. 1137.**

4.—*Ep. Carn.* VII, Sh. 4; p. 13 [1]—3; 14 [3]—78. Kallūrguḍḍa inscription of Nanniya-Gaṅga:—

Śaka-varsha 1027 neya Sarvajitu Phālguṇa-māsada 1 Sukravārad=andu.

Ś. 1027 current=Sarvajit by the northern luni-solar system; in this year, Phālguna-su 1 ended at 24 *gh.* 42 *p.* after mean sunrise on **Friday, 17th February, A.D. 1105.**

5.—*Ep. Carn.* XI, Jl. 46; p. 157[1]—1; 241[3]—2. Kasavanahaḷḷi inscription of the Chitaldrug Chief Medakērināyaka:—

svasti śrī vijayābhyudaya Sālivāhana-śaka-varushaṅgaḷu 1655 Rudhirōdgāri-nāma-saṁvatsarada Śrāvaṇa-śuddha-daśamiyalu,

The date is not verifiable; but Ś. 1655 expired corresponds to Rudhirōdgārin of the northern and not the southern luni-solar system.

6.—*Ep. Carn.* VII, Sk. 54; p. 101[1]—1; 157[3]—3. A Tāgarti-agrahāra inscription :—

svasti śrī jayābhyudaya Sālivāhana-śaka-varuśa 1437 neya Chitrabhānu-saṁvatsara Māgha-śuddha 5 llu.

The date is not verifiable; but Ś. 1437 current=Chitrabhānu by the mean-sign system according to the Sūrya Siddhānta, and by the northern luni-solar system according to the Brahma Siddhānta.

7.—*Ep. Carn.* VIII, Sb. 341; p. 125[1]—2; 160[3]—2. An inscription at Kuṇiteppa :—

Śaka-varusha 1330 neya Manmatha-saṁvatsarada Mārggasira-bahuḷa-saptamī Śanivāra Hubbe-nakshatra Prīti-yōga Bhadrā-karaṇadalu.

In Ś. 1330 expired the mean-sign Manmatha[1] began, according to the Brahma Siddhānta, on 15th May, A.D. 1408. In this year Mārggaśira ba-7 began, according to the same Siddhānta at 58*gh.* 31*p.* after mean sunrise on **Saturday, 8th December, A.D. 1408.** The *nakshatra* Hubbe or Pūrvā-Phalgunī began according to the equal-space system at 6*gh.* 27*p.* after mean sunrise on that day and ended on the following day; according to the unequal-space systems of the Brahma Siddhānta and Garga, the *nakshatra* began at more than 23*gh.* before sunrise on that day and ended

[1] It is interesting to note that the date works out partly correctly for the southern luni-solar Manmatha (=Ś. 1337) also. In that year, Mārggaśira ba-7 ended at 14*gh.* 42 *p.* after mean sunrise on **Saturday, 23rd November, A.D. 1415.**

The *nakshatra* Pūrvā-Phalgunī ended on that day at 50*gh.* 13 *p.* after mean sunrise and the *yōga* Prīti began on that day at 13*gh.* 55 *p.* after mean sunrise. The *karaṇa* however that was associated with ba-7 on that day was not Bhadrā (this had ended 13*gh.* 53*p.* *before* mean sunrise of that day) but Bava. This difference in the *karaṇa* shows that the year intended is not the southern luni-solar Manmatha; that is to say, it shows that this date really belongs to class (B) and not to class (C).

too, on that day. The *yōga* Prīti ended on that day at 12*gh.* 21 *p.* after mean sunrise; and the *karaṇa* Bhadrā or Vishṭi began at the same moment as the *tithi* ba-7. This therefore is the day intended by the inscription.

For class (C) :—

8.—*No. 524 of the Madras Epigraphist's Collection for 1914.* A Talakallu inscription of the time of the W. Chālukya Vikramāditya VI gives the following date :—

Chālukya Vikrama year 37, Durmukhi, Pushya-su-di. *Pāḍive*, Sunday, *Uttarāyaṇa-saṅkrānti-vyatīpāta.*

On the supposition that the Chālukya Vikrama era began in Ś. 998,[1] Chā. Vi. 37 or Ś. 1035 corresponds to Durmukhi by the northern luni-solar system. In this year, Pushya-su 1 began at 10*gh.* 51 *p.* on Wednesday, 10th December, A.D. 1113 and ended on the following day. Neither of these two days was associated with a *saṅkrānti*—sidereal or tropical; and the date is therefore incorrect for this year.

By the southern luni-solar system, Durmukhi=Ś. 1038. In the year following [2] this Durmukhi, Pushya-śu 1 began at 26*gh.* 11*p.* after mean sunrise on **Sunday, 25th November A.D. 1117.** On this day occurred the Dhanus-saṅkrānti at 20*gh.* 0*p.* (S.S.) or 16*gh.* 17*p.* (A.S.) after mean sunrise. This day, evidently, is the one intended by the inscription.

9.—*Ep. Carn.* V, Ak. 42; p. 289[1]—15; 390[3]—22. Kaṇikaṭṭe inscription of the time of the Hoysala Narasiṁha I :—

Śaka-varsha 1077 neya Bahudhānya-saṁvatsarada Chaitra-suddha-uttarāyaṇa-saṅkrānti - vyatīpāta - pañchamī Sōmavārad=andu.

Ś. 1077 expired=Bahudhānya by the northern luni-solar system. For this year, the date is irregular. Bahudhānya by the southern luni-solar system=Ś. 1080. In this year, the *saṅkrānti* in Chaitra at the end occurred at 46*gh.* 27*p.*

[1] See however §§ 62-68 below.

[2] For 'following years,' see § 19 below.

after mean sunrise according to the Brahma Siddhānta on Monday, 23rd March, A. D. 1159; the *tithi* however on that day was su-2 (ending) or su-3 (beginning) and not su-5.

In the following year[1] (Ś. 1081), however, su-5 of Chaitra at the end ended at 43*gh.* 52*p.* after mean sunrise on **Monday, 14th March, A.D. 1160.** With that day, too, was probably associated (see § 30 below) the tropical[2] Mēsha-saṅkrānti which occurred, according to the Ārya Siddhānta at about 53*gh.* 24*p.* after mean sunrise on the preceding Sunday. This Monday therefore seems to be the day intended by the inscription.

10.—*KLISI.* No. 194-*b.* Ālūr inscription of the reign of the W. Chālukya Vikramāditya VI Tribhuvana-malla :—

"The time of the *mahā-saṅkramaṇa*, on Sunday, the day of the full-moon of the month Śrāvaṇa of the Krōdhi *saṁvatsara*, which was the 46th of the years of the glorious Chālukya king Vikrama."

Chā. Vi. 46 current corresponds, on the supposition that his reign began in Ś. 998,[3] to Ś. 1043, expired, which, by the northern luni-solar system was Krōdhin. In this year Śrāvaṇa-su 15 ended at 30*gh.* 27*p.* after mean sunrise on Sunday, 31st July, A. D. 1121; but there was no *saṅkrānti* —tropical or sidereal—that was associated with that day.

Krōdhin by the southern luni-solar system = Ś. 1046. In this year Śrāvaṇa-su 15 commenced at 7*gh.* 2*p.* after mean sunrise on **Sunday, 27th July, A. D. 1124**; on this day, too, took place the (sidereal) Siṁha-saṅkrānti at 18*gh.* 3*p.* (S. S.) or 10*gh.* 44*p.* (A. S.) after mean sunrise. This evidently, is the day intended by the inscription.

I may here point out that the details of this date which are given on p. 23 of the *Indian Antiquary*, Vol. VIII, have not been given by Kielhorn in his *List of Inscriptions of Southern India*, as he evidently thought that it would serve

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[1] For following years, see § 19 below.

[2] For tropical *saṅkrāntis*, see § 27 below.

[3] See however on this point §§ 62-68 below.

no useful purpose to reproduce the details of such an 'irregular' date.

11.—*Ep. Carn.* VIII, Sb. 549; p. 172[1]—2; 240[3]—10. Sigga inscription of the time of the W. Chālukya Tribhuvanamalla Vikramāditya VI:—

Śrīmatu Chāḷukya-Vikrama-varisaṁ 13 neya Prajōtpatti-saṁvatsarada Śrāvaṇa-śuddha 10 Sōmavārad=and=uttarāyaṇa-saṅkrānti-vyatīpātad=andu.

Chā. Vi. 13 expired or Ś. 1011=Prajōtpatti (Prajāpati) by the northern luni-solar system. In this year, Śrāvaṇa-su-10 ended at 58*gh.* 28*p.* after mean sunrise on Thursday, 19th July, A.D. 1089; and the sidereal Siṁha-saṅkrānti occurred on 27th July, and the tropical Siṁha-saṅkrānti towards the end of 17th July (or beginning of 18th July) according to the Sūrya Siddhānta.

Prajāpati by the southern luni-solar system=Ś. 1013. In this year, Śrāvaṇa-su 10 ended at 16*gh.* 2*p.* after mean sunrise on **Monday, 28th July, A.D. 1091**; on this day too must have been observed the *saṅkrānti* which occurred at 45*gh.* 43*p.* (S.S.) or 38*gh.* 32*p.* (A.S.) after mean sunrise on the preceding day. It is evident that this is the day intended by the inscription.

12.—*Ep. Carn.* II.—Inscriptions at Śravaṇa-Beḷgoḷa, No. 96, p. 74:—

Śaka-varusha 1191 neya Śrīmukha-saṁvatsarada Śrāvaṇa-śuddha 15 Ādivāradallu.

Ś. 1191 expired=Śrīmukha by the northern luni-solar system; for this year, the date is irregular. Śrīmukha by the southern luni-solar system=Ś. 1195; and in this year, Śrāvaṇa-su 15 commenced 6 *h.* 14 *m.* after mean sunrise on **Sunday, 30th July, A.D. 1273**, as stated by Kielhorn; see *KLISI.* No. 446.

For class (D)—

13.—*Ep. Carn.* V, Ak. 30; p. 279[1]—17; 376[3]—27. Śānegere inscription of the time of the W. Chālukya Āhavamalla:—

Saka-nṛipa-kāl-ātīta-saṁvatsara-śataṅgaḷu 1057 ḷeneya Ānanda-saṁvatsarada Mārggaśira-śuddha-pañchami-Bṛihaspativārad=uttarāyaṇa-saṅkrānti-vyatīpātad=andu.

Ś. 1057 current=Ānanda by the southern luni-solar system; for this year the date is irregular, as there took place no *saṅkrānti* on Thursday, 22nd November, A.D. 1134, the day in which Mārgaśira-su 5 ended.

Ānanda by the northern luni-solar system=Ś. 1053; in this year, Mārgaśira-su 5 ended at 54*gh.* 14*p.* after mean sunrise on **Thursday, 26th November, A.D. 1131**, on which day also fell, *i.e.*, was observed the *saṅkrānti* which had occurred at 57*gh.* 21*p.* (S. S.) or 53*gh.* 34*p.* (A. S.) after mean sunrise of the previous day.

14.—*Ep. Carn.* VII, Sk. 294; p. 262[1]—7; 343[3]—9. Tumbarahosūru inscription of the time of the W. Chālukya Tribhuvanamalla:—

Chāḷukya-Vikrama-varshada 32 neya Sarvvajitu-saṁvatsarada Pushya-śuddha-pañchami Ādityavāram=uttarāyaṇa-saṅkrānti-vyatīpātad=andu.

Chā. Vi. 32 current (=Ś. 1029)=Sarvajit by the southern luni-solar system; in this year Pushya-su 5 ended at 35*gh.* 37*p.* after mean sunrise on Saturday, 21st December, A.D. 1107, while the *saṅkrānti* occurred according to the Brahma Siddhānta at 0*gh.* 20*p.* after mean sunrise on Tuesday, 24th December, and according to the Sūrya and Ārya Siddhāntas at 3*gh.* 48*p.* and 2*gh.* 7*p.* respectively after mean sunrise on Wednesday, 25th December. The date is thus irregular for the southern luni-solar Sarvajit.

Sarvajit by the northern luni-solar system=Ś. 1026. In this year, su-5 of the lunar month Pushya ended at 10*gh.* 16*p.* after mean sunrise on 24th December, A.D. 1104, on which day occurred the Makara-saṅkrānti at 17*gh.* 14*p.* (S.S.) or 15*gh.* 33*p.* (A.S.) after mean sunrise; the weekday however was Saturday and not Sunday. In the same year, su-5 of

the *solar* month[1] Pushya (=Makara or Tai) ended at 37*gh.* 39*p.* after mean sunrise on **22nd January, A.D. 1105,** on which day also occurred the *saṅkrānti* at 44*gh.* 8*p.* (S.S.) or 42*gh.* 57*p.* (A.S.) after mean sunrise. The weekday in this case *was* Sunday. This therefore is the day intended by the inscription.

15.—*Ep. Carn.* IV, Ng. 29; p. 200[1] —7; 338[3] —57. Lālanakere inscription of the time of Ballāḷa II :—

Saka-varsha 1140 neya Bahudhānya-saṁvatsarada Māgha-su 13 Brihavārad=uttarāyaṇa-saṅkramaṇa-vyatīpātad=andu.

Ś. 1140=Bahudhānya by the southern luni-solar system; in this year Māgha-su 13 ended on Wednesday, 30th January, A.D. 1219 at 8*gh.* 53*p.* after mean sunrise; while the *saṅkrānti* occurred at 8*gh.* 37*p.* after mean sunrise on 23rd January according to the Brahma Siddhānta, and at 14*gh.* 0*p.* or 12*gh.* 19*p.* after mean sunrise of 24th January according to the Sūrya and Ārya Siddhāntas. The date is thus irregular for the southern luni-solar Bahudhānya.

Bahudhānya by the mean-sign system began on 30th September, A. D. 1213, according to the Śurya Siddhānta. In this year, Māgha-su 13 ended at 50 *gh.* 25 *p.* after mean sunrise on **Saturday,[2] 25th January, A.D. 1214;** on this day also probably fell or was observed (see §29 below) the *saṅkrānti* which had occurred at 56*gh.* 23*p.* (S. S.) or 54*gh.* 43*p.* (A. S.) after mean sunrise of the previous day but one—that is of Thursday, 23rd January. This Saturday therefore is the equivalent of the given date.

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[1] For solar months, see below, § 31.

[2] For Bṛihavāra=Saturday, see § 26 below. If we take *Bṛihavāra* as equivalent to Thursday, the equivalent of the given date would be Thursday, 11th January, A.D. 1118. On this day ended the *tithi* su-13 of Māgha at 21*gh.* 6*p.* after mean sunrise and the tropical Kumbha-saṅkrānti according to the Brahma Siddhānta took place at about 9*gh.* 36*p.* after mean sunrise on that day; the year was the one preceding Ś. 1140; see below, § 20.

16.—*Ep. Carn.* V, Cn. 209; p. 487[1]—21; 645[3]—44. Baḷagaṭṭe inscription of the time of Ballāḷa II:—

Saka-varsha 1101 neya Viḷambi-saṁvatsarada Chaitrad =amāvāse Ādivāra vyatīpāta-saṅkramaṇad=andu.

Ś 1101 current=Viḷambin by the southern luni-solar system. In this year, the *amāvāsyā* at the beginning of Chaitra ended on Tuesday, 21st March, A.D. 1178 and that at the end of the above month on Wednesday, 19th April, 1178. The *amāvāsyā* at the beginning of the Chaitra at the end of the year, ended on Saturday, 7th March, A.D. 1179, while that at the end of the above month ended on Sunday, 8th April, 1179. None of the above four days (and none of the days preceding them on which the *amāvāsyā* commenced) were associated with a *saṅkrānti*, and the date is therefore irregular for this year.

Viḷambin by the northern luni-solar system=Ś 1096. In this year the *amāvāsyā* at the end of the Chaitra that occurred at the end of the year began at 15*gh.* 1*p.* after mean sunrise on **Sunday, 23rd March, A. D. 1175.** On this day too occurred the Mēsha-saṅkrānti at 54*gh.* 1*p.* after mean sunrise according to the Brahma Siddhānta. This Sunday is the day intended by the inscription.

17.—*Ep. Carn.* V, Ag. 52; p. 558[1]—1; 757[3]—1. Uḷḷēnahaḷḷi inscription of the time of Harihara II of Vijayanagar:—

svasti śrī jayābhyudaya Śaka-varsha 1326 Tāraṇa-saṁvatsarada Jyēshṭha-bahuḷa 30 Guru sūrya-grahaṇad= andu.

Ś 1326=Tāraṇa by the southern luni-solar system. In this year, the *amāvāsyā* at the beginning of Jyēshṭha commenced at 25*gh.* 24*p.* after mean sunrise on Thursday, 8th May, A.D. 1404, and ended on the following day. The *amāvāsyā* at the end of Jyēshṭha began on Friday, 6th June, 1404 at 51*gh.* 32*p.* after mean sunrise and ended on the following day. On none of these days did a solar eclipse occur. The date is thus irregular for this year.

Tāraṇa by the northern luni-solar system = Ś 1320. In this Tāraṇa, the *amāvāsyā* at the beginning of Jyēshṭha ended on **Thursday, 16th May, A.D. 1398.** On this day too occurred a solar eclipse which was invisible in India. It is evident that this is the day intended by the inscription.

18.—*Ep. Carn.* IV, Hs. 137, p. 156[1] —16; 271[3] —29. Dharmāpura inscription of the time of the Hoysala Narasiṁha I:—

Śaka-varśa sāsirad embhatta-nālkeneya Chitrabhānu-saṁvatsarada Puśya-suddha-tadige Bṛihaspativāra-vyatīpātaṁ kūḍid-uttarāyaṇa-saṅkramaṇad = andu.

Ś. 1084 = Chitrabhānu by the southern luni-solar system: in this year Pushya-su 3 ended on 10th December, A.D. 1162, at 51*gh.* 26*p.* after mean sunrise; on this day there was no Vyatīpāta and no *saṅkrānti*, nor was the weekday Thursday. The date is therefore in every respect irregular for this year.

Chitrabhānu by the mean-sign system began in Ś. 1080 on 24th May, A.D. 1158, according to the Sūrya Siddhānta; in this year Pushya-su 3 ended at 45*gh.* 58*p.* after mean sunrise on **Thursday, 25th December A.D. 1158**; on this day the *yōga* Vyatīpāta commenced at 9*gh.* 7*p.* after mean sunrise while the Makara-saṅkrānti too, took place on this day at 15*gh.* 36*p.* (S.S.) or 13*gh.* 40*p.* (A.S.) after mean sunrise.

19.—*Ep. Carn.* XI, Dg. 141; p. 136[1]—7; 197[3] —22. Bāḍa inscription of the W. Chālukya Trailōkyamalla:—

Saka-varsha 986 neya Krōdhi-saṁvatsarada Pushya-suddha-dasami Ādityavāra uttarāyaṇa-saṅkrānti-vyatīpātad = andu.

Ś. 986 = Krōdhin by the southern luni-solar system; in this year, Pushya-su 10 ended at 19*gh.* 17*p.* after mean sunrise on Tuesday, 21st December, A.D., 1064, while the *saṅkrānti* took place at 54*gh.* 43*p.* after mean sunrise of Wednesday, 22nd December, according to the Brahma Siddhānta and at 56*gh.* 13*p.* or 54*gh.* 43*p.* after mean sunrise of Thursday, 23rd December, according to the Sūrya and Ārya Siddhāntas.

By the mean-sign system, the year Krōdhin began in Ś. 983 on 11th July, A.D. 1061. In this year, the Makara-saṅkrānti, according to the Brahma Siddhānta, took place at 7*gh.* 25*p.* after mean sunrise on **Sunday, 23rd December, A.D. 1061**; while Pushya-su 10 commenced on this day at 50*gh.* 56*p.* after mean sunrise.

20.—*Ep. Carn.* XII, Tm. 44; p. 24^{1}—3; 35^{3}—1. Dēvarāya-durga copper plate of Rāmarāya of Vijayanagar :—

svasti sri vijayābhyudaya-Śālivāhana-śaka-varushaṅgaḷu 1484 Dundubhi-saṁvatsarada Mārgaśira-śuddha paurṇamiyalu.....sōmōparāga-puṇyakāladalu.

Ś. 1484=Dundubhi by the southern luni-solar system; in this year there was no lunar eclipse on Mārgaśira-su 15. Ś. 1476=Dundubhi by the northern luni-solar system; in this year there occurred a lunar eclipse visible in India on Mārgaśira-su 15—*i.e.*, on **Saturday, 8th December, A.D. 1554.**

21.—*Ep. Carn.* III, Md. 29; p. 90^{1}—7; 132^{3}—11. Vaidyanāthapura inscription of the time of the Hoysala Vishṇuvardhana :—

Saka-varusha 1053 neya Paridhāvi-saṁvatsarada Paushya-māsada śuddha-pañchami Sōmavāra uttarāyaṇa-saṅkramaṇad=andu.

Ś. 1053†[1]=Paridhāvin by the southern luni-solar system. In this year, Pushya-su 5 ended at 50*gh.* 24*p.* on 14th December, A.D. 1132; on this day too occurred the tropical[2] Makara-saṅkrānti at about 10*gh.* 12*p.* after mean sunrise according to the Ārya Siddhānta. The weekday however was Wednesday and not Monday.

Paridhāvin by the northern luni-solar system=Ś. 1050. In this year, Pushya-su 5 began at 50*gh.* 48*p.* after mean sunrise on 16th December, A.D. 1129. On this day too must have been observed the tropical Makara-saṅkrānti

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[1] For the explanation of a Śaka year marked with a dagger, see § 24 below.

[2] For tropical *saṅkrāntis*, see § 27 below.

which according to the Sūrya Siddhānta occurred at about 37*gh.* 12*p.* after mean sunrise of the previous day. The weekday too in this case was Monday. Evidently it is this **Monday, 16th December, A.D. 1129**, that is the day intended by the inscription.

22.—*Ep. Carn.* XI, Dg. 84; p. 116[1]—22; 158[3]—57. Gaṅganarasi inscription of the time of the Kaḷachuri Bijjaṇa:—

Saka-varshada sāsirada embhatta-mūṛaneya Vikrama-saṁvatsarada Pushya-suddha-dasamī Ādityavāra uttarāyaṇa-saṅkramāṇa-vyatīpātad=andu.

Ś. 1083 current=Vikrama by the southern luni-solar system. For this year, the date is irregular as Pushya-su 10 ended in this year at 19*gh.* 17*p.* after mean sunrise on 10th December, A.D. 1160, a day which was not a Sunday and with which there was associated neither a tropical nor a sidereal *saṅkrānti.*

Vikrama by the mean-sign system began on 2nd June, A.D. 1156. In this year, Pushya-su 10 ended at 38*gh.* 40*p.* after mean sunrise on **Sunday, 23rd December, A.D. 1156**, on which day occurred at 40*gh.* 8*p.* after mean sunrise the (sidereal) Makara-saṅkrānti according to the Brahma Siddhānta. Evidently it is this day that is intended by the inscription.

23.—*No. 522 of the Madras Epigraphist's collection for 1915.* A Chi[illegible]a-Tumbulam inscription of the time of the W. Chalukya Sōmēśvara I contains the following date:—

Śaka 974, Nandana, Pushya-bahuḷa 2, Thursday, *uttarāyaṇa-saṅkrānti.*

Ś. 974 expired=Nandana by the southern luni-solar system. In this year there was no Pushya-bahuḷa 2, as the month Pushya was *kshaya* or suppressed. The date is therefore obviously irregular for this year.

By the mean-sign system, the year Nandana began on 31st August, A.D. 1049. In this Nandana, Pushya-ba 2 ended at 15*gh.* 2*p.* after mean sunrise on **Thursday, 14th**

December, A. D. 1049. On this day occurred, according to the Brahma Siddhānta, the tropical Makara-saṅkrānti at about $3gh.\ 3p.$ after mean sunrise. This day therefore is evidently the one intended by the inscription.

9. The above dates—Nos. 13-23—are instances of a slight irregularity caused by confusion between the various systems of Jovian years in use. These all represent but one departure from the truth; that is, one error only is committed in them either in the Śaka year or the Jovian year, and the error can easily be discovered but only after an examination of the dates which, at first sight, seem to be quite regular. If we write down in four parallel columns the Śaka years with the corresponding Jovian years (*a*) according to the southern luni-solar system and (*b*) according to the northern luni-solar system, we find that the error committed in the above instances consists in reading off for column 2, the corresponding Śaka year from column 3, or in reading off for column 4, the corresponding Śaka year

Southern luni-solar system.		Northern luni-solar system.	
Śaka Years.	Jovian Years.	Śaka Years.	Jovian Years.
949	Prabhava ...	947	Prabhava.
950	Vibhava ...	948	Vibhava.
951	Śukla ...	949	Śukla.
952	Pramōda (Pramōdūta) ...	950	Pramōda.
953	Prajāpati (Prajōtpatti) ...	951	Prajāpati.
954	Āṅgirasa ...	952	Āṅgirasa.
955	Śrīmukha ...	953	Śrīmukha.
956	Bhāva ...	954	Bhāva.
957	Yuvan ...	955	Yuvan.
958	Dhātṛi (Dhātu) ...	956	Dhātṛi.

from column 1. Thus if we want to give the details of a date in Ky. 4136 expired which by the southern luni-solar system is Yuvan, we should, to be correct, read off the corresponding Śaka year from column 1, and write 'Ś. 957 Yuvan.' If, instead, we read off the Śaka year from column 3

and put down 'Ś. 955, Yuvan' we will be committing an irregularity similar to that committed in the instances given above. This irregularity would be a departure from the truth, but only one step away from the truth; for, it is not difficult for one to make a further progress in error, and, in the above instance, to write 'Ś. 955, Śrīmukha,' instead of 'Ś. 955, Yuvan.' By so doing one will be going another step away from the truth, for, here, there is a two-fold irregularity, firstly, in reading off the Śaka year from column 3 instead of column 1, and secondly, in reading off again the Jovian year from column 2 instead of from column 4. This process, this confusion between the northern and southern luni-solar years, might repeat itself any number of times; but so far as the actual usage of inscriptions is concerned, I have not found many dates of this type. Below in Nos. 24—27 will be seen what seem to me to be some instances of such confusion between the northern and southern luni-solar systems.

The Nāraṇāpuram copper-plates—No. 2 in App. A of the Madras Epigraphist's Annual Report for 1909—1910 seem to illustrate clearly the statement made above. These cite the date as 'Śaka 1722, Kaliyuga 4890, Raudri'; and it should be noticed that whereas Ś. 1722 corresponds to the Jovian year Raudri by the southern luni-solar system, Kaliyuga 4890 or Ś. 1711 corresponds to Raudri by the northern luni-solar system. As the details of the date are not given, it is not possible to determine which Raudri is really intended by the date; but it is easy to see that there lies a mistake[1] of the kind discussed above in the mention together of Ś. 1722 and Ky. 4890.

24.—*Ep. Carn.* VII, Sh. 10, p. 17[1]—1; 19[3]—1. Taṭṭekere inscription of the time of the W. Chālukya Vikramāditya VI Tribhuvanamalla:—

Saka-varsham 1001 neya Krōdhana-saṁvatsarada Jyēshṭha-bahuḷa-chaṭṭi Vaḍḍavāra.

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[1] See, however, as regards this particular date, § 78 below.

Ś. 1001=Dundubhi (mean-sign system). Dundubhi (southern luni-solar)=Ś. 1004 and Ś. 1004=Krōdhana (by the northern luni-solar system). Hence perhaps the association of Ś. 1001 with the year Krōdhana.

The equivalent is **Thursday, 23rd May, A.D. 1079** (on this day, Jyēshṭha-ba 6 of the year Ś. 1001 began at 52*gh.* 27*p.* after mean sunrise) or **Thursday, 19th May, A.D. 1082** (on this day Jyēshtha-ba 6 of the northern luni-solar year Krōdhana=Ś. 1004, began at 44*gh.* 34*p.* after mean sunrise).

25.—*Ep. Carn.* VI, Kd. 124; p. 68[1]—18; 110[3]—40. Hēraḷagaṭṭa inscription of the time of Narasiṁha III :—

Saka-varisa 1198 Prajōtpatti-saṁvatsarada Phālguṇa-su 15 Sō sōmagrahaṇa-vyatīpāta-saṅkramaṇadalu.

The association of Ś. 1198 with Prajōtpatti is due to a mistake between the northern and southern luni-solar years. Prajōtpatti by the southern luni-solar system=Ś. 1194 current, Ś. 1194 current=Dhātṛi by the northern luni-solar system; and Dhātṛi (by the southern luni-solar system)=Ś. 1198 expired.

The equivalent of the above date is **Monday, 15th February, A.D., 1272.** This was the day of Māgha-su 15 of the southern luni-solar Prajāpati=Ś. 1194 and on this day occurred a lunar eclipse visible in India; but there was no *saṅkrānti* on this day.

It is interesting to notice that another inscription (Kd. 125) at Hēraḷagaṭṭa, and indeed of the same temple as Kd. 124 above, cites the same date but with the correct Śaka year.

26.—*Ep. Carn.* XI, Hr. 36; p. 184[1]—2; 300[3]—5. Kaṇḍēnahaḷḷi copper plate of the Haraṭi chief Tippaḷa-nāyaka :—

svasti vijayābhyudaya Śālivāhana-śakha-varushambulu 1439 Vijaya-saṁ || rada pushya-ba 10 llu.

The date is not verifiable; but the association of Śaka 1439 with the year Vijaya seems to be due to such a mistake. For,

Ś. 1439=Pārthiva (northern luni-solar system).

Pārthiva (southern luni-solar system)=Ś. 1447 and Ś. 1447=Vijaya (northern luni-solar system).

27.—*Ep. Carn.* V, Ak. 145; p. 410[1]—9; 537[3]—19. Kōḍihaḷḷi inscription of the time of the Hoysala Narasiṁha I:—

Saka-varusada sāsirad-eppatt-ondaneya Īśvara-saṁvatsarada Māgha-māsa uttarāyaṇa-saṅkramāṇa-byatīpāta-ashṭamī-Sōmavārad-andum.

Here, too, the association of Śaka 1071 with the year Īśvara seems to have been caused by such a mistake; for,

Ś. 1071=Śrīmukha (by the mean-sign system);
and Śrīmukha (southern luni-solar system)=Ś. 1075
and Ś. 1075=Īśvara (mean-sign system).

The day intended by the above date is either **Monday 23rd January, A.D. 1150** or **Monday, 22nd February, A.D. 1154.*** On the former of the above days, ba-8 of the lunar month of Māgha of Ś. 1071 ended at 7*gh.* 33*p.* after mean sunrise and the *saṅkrānti* occurred on that day at 22*gh.* 45*p.* (S.S.) or 21*gh.* 23*p.* (A.S.) after mean sunrise. On the latter of the above two days, the *tithi* su-8 of the solar month Māgha or Kumbha ended at 48*gh.* 35*p.* after mean sunrise, and the *saṅkrānti* occurred at 14*gh.* 5*p.* (S.S.) or 11*gh.* 58*p.* (A.S.) after mean sunrise on that day. The Jovian year that was current by the mean-sign system was Īśvara which, according to the Sūrya Siddhānta began on 14th June, A.D. 1153.

Vyatipata

10. A verifiable detail which is frequently cited by inscriptions is Vyatīpāta, which is not only the name of a particular *yōga*, the seventeenth in the series beginning with Vishkambha, but is also used of several astronomical combinations. (See Hēmādri's *Dānakhaṇḍa*, Bibliotheca Indica Edition, pp. 69, 70). A gift made during Vyatīpāta, it is declared by Yājñavalkya, Varāha Purāṇa,

* The inscription does not specify the fortnight; hence the indeterminate result. As can be seen, the *tithi* for the first of the above days is ba-8, and for the second, su-8.

Bhṛigu, Bharadvāja, etc. (see *op. cit.* pp. 69—70), yields incalculable merit; and apparently for this reason, we find many inscriptions citing Vyatīpāta and associating it with occasions when in fact no kind of Vyatīpāta occurred. For instances of such usage, see Nos. 8, 9, 11, 15, 19, 22, etc.

11. In such instances, the inscriptions mention Vyatīpāta though it does not (and cannot) actually occur, with the object of enhancing the auspiciousness of the occasion of the gift. Gifts made during Vyatīpāta yield, as we have seen above, incalculable merit; and it must have been naively believed that even the mention of Vyatīpāta on occasions of gift somehow contributed to increase the amount of merit (*puṇya*) that would accrue from the gift. As an analogous instance, I may refer to the current practice of entreating the Brahmins that are fed on occasion of *śrāddha* ceremonies to say that the ceremony was performed at Gayā. The Brahmins' assurance that it *was* performed at Gayā is felt to confer more merit on the ceremony, to make it productive of as much merit in fact, as would have accrued if the ceremony had been really performed at Gayā. *Vyatīpāta* is, in the inscriptions, most frequently cited along with *saṅkrāntis;* in the great majority of instances, its use is honorific, that is, made for the sake of greater auspiciousness, and not by reason of its actual occurrence.

Eclipses

12. Solar and lunar eclipses are other details which are sometimes mentioned by the inscriptions. Like the Vyatīpāta, the time of eclipses, too, is reckoned to be very auspicious for making gifts (see Hēmādri, *loc. cit.* p. 71); and like the Vyatīpāta, therefore, the inscriptions cite eclipses also honorifically. Here are a few instances of such usage:—

28.—*Ep. Carn.* VI, Tk. 59; p. 233[1]—10; 450[3]—17. Samataḷa inscription of the time of the Hoysala Narasiṁha I:—

Saka-varshada 1079 Īśvara-saṁvatsarada Māgha-suddha 10 Sōmavāra uttarāyaṇa-saṅkrānti-sūryyagrahaṇa-vyatīpātadalu.

It is unnecessary to point out that no eclipse can possibly occur on śuddha-10; the mention of *sūrya-grahaṇa* here therefore is purely honorific. The equivalent of the date is **Monday, 10th February, A. D. 1158.** On this day ended su-10 of the solar month Māgha (or Kumbha) of the year Īśvara (=Ś. 1079) at 10*gh.* 40*p.* after mean sunrise; and the tropical Mīna-saṅkrānti, according to the Brahma Siddhānta, took place at about 16*gh.* 14*p.* after mean sunrise of this day.

29.—*Ep. Carn.* V, Ak. 62; p. 311[1]—22; 418[3]—57. Halkur inscription of the time of Ballāḷa II :—

Saka-varuśa 1100 neya Hēmaṇambi-saṁvatsarada Bhādrapada-suddha-trayōdasi-Vaḍḍavāra uttarāyaṇa-saṅkramaṇa-vyatīpāta-sōmagrahaṇad=andu.

The equivalent of the date seems to be **27th, August, A.D. 1178**; on this day ended the *tithi* su-13 of Bhādrapada at 52*gh.* 17*p.* after mean sunrise while the *saṅkrānti* according to the Brahma Siddhānta occurred at 9*gh.* 38*p.* after mean sunrise. The year was Ś. 1100 or the year following the southern luni-solar Hēmalambi (see § 19 below). The weekday, however, was Sunday and not Saturday.

The *tithi* being su-13, there was, of course, no eclipse on that day.

30.—*No. 499 of the Madras Epigraphist's Collection for 1915*, an inscription at Pedda Tumbalam :—

Chālukya-Vikrama year 58, Pramādīcha, Pushya-ba 11, Sunday, *uttarāyaṇa-saṅkrānti-vyatīpāta*, solar eclipse.

It is obvious that no eclipse can take place on ba-11. The equivalent is **Sunday, 24th December, A.D. 1133.** On this day, ba-11 of Pushya in Pramādīcha (=Ś. 1055) ended at 6*gh.* 41*p.* after mean sunrise, and the *saṅkrānti* too took place at 47*gh.* 28*p* (S.S.) or 45*gh.* 39*p.* (A. S.) after mean sunrise.

31.—*No. 354 of the Madras Epigraphist's Collection for 1915* ; an inscription at Kundurru :—

Śaka 1445; Chitrabhānu, Vaiśākha-su 3, Monday, solar eclipse.

The equivalent of the date is **Monday, 28th April, A. D. 1522** (on this day Vaiśākha-su 3 commenced at 3*gh.* 38*p.* after mean sunrise); there could be no eclipse on that day which was a *tṛitīyā*.

13. In all the above examples, the mention of the *tithi* makes it clear that the citation of eclipse is honorific. There are, however, other examples where also, in my opinion, the citation of eclipses is honorific but is made in conjunction with a *pūrṇimā* or an *amāvāsyā*. In such instances, one has to infer that the mention of the eclipse is honorific after one has examined the date from all standpoints. For instances see Nos. 57, 69.

14. It now becomes clear to us why some inscriptions *e.g.*, Nos. 17, 59, cite eclipses which were invisible in India. If the inscriptions mention honorifically eclipses that do not occur to enhance the auspiciousness of the occasions, it is no wonder that they mention eclipses that did occur but were invisible in India with the same object. Such citation of eclipses should not be construed, as Prof. Jacobi seems to do (*Ep. Ind.* I, p. 423) as showing that the Indian astronomers or almanac-makers did not know their subject well enough to predict whether an eclipse would occur and if so, whether it would be visible or invisible in India. It is also gratuitous to suppose, as Prof. Jacobi seems to do (*loc. cit.*) that the ordinary people did not trouble themselves about verifying the prediction, but were content to believe implicitly whatever was written about such matters in the almanacs. In all likelihood, the donors in such instances knew quite well that there was no eclipse[1] or that there was none visible in India, and yet mentioned the eclipse with the other details of the date with the object of adding to the auspiciousness of the occasion.

15. These occasions, too, it will be noticed, are such as are nearly equivalent to eclipses in point of auspiciousness.

[1] The same statement holds good as regards the Vyatīpāta also.

Thus, in No. 31 above the occasion of the gift is the occurrence of Vāiśākha-su 3 or *akshayatṛitīyā ;* in Nos. 28—30 it is the *saṅkrānti.* Regarding the auspiciousness of these occasions, I quote here some texts from Hēmādri's *Dānakhaṇḍa* :—

Padma-purāṇē—

Vaiśākha-māsē yā puṇyā tṛitīyā śukla-pakshajā |
ananta-phala-dā dātuḥ snāna-dānādi-karmasu. ||
(p. 62, ll. 8, 9)

Skanda-purāṇē—

navamyāṁ śukla-pakshasya Kārttikē niragāt Kṛitam |
Trētā sita-tṛitīyāyāṁ Vaiśākhē samapadyata. ||
darśē tu Māgha-māsasya pravṛittam Dvāparaṁ yugam |
Kaliḥ kṛishṇa-trayōdaśyāṁ nabhasyē māsi nirgataḥ |
Yugādayaḥ smṛitā hyētē dattasyākshaya-kārakāḥ ||
(p. 67, ll. 2—7).

āha Vishṇuḥ—

Amāvāsyā Vyatīpāto grahaṇaṁ chandra-sūryayōḥ |
Manvādayō yugādiś cha saṅkrāntir Vaidhṛitis tathā ||
dina-kshayaṁ dina-chchhidram avamaṁ cha tathā param |
dvē'-yanē vishuvad-yugmaṁ shaḍaśītimukhaṁ tathā ||
chatasrō vishṇupadyaś cha putra-janmādi chāparam |
Ādityādi-grahāṇāṁ cha nakshatrais saha saṅgamē ||
vijñēyaḥ puṇya-kālō'yam jyōtir-vidbhir vichāryya cha |
tatra dānādikaṁ kuryād ātmanaḥ puṇya-vṛiddhayē ||
(p. 76, ll. 8—15).

From the above texts we learn that Vaiśākha-su 3 and other *yugādis*, *manvādis*, newmoons, eclipses of the sun and moon, Vyatīpāta, Vaidhṛiti, and *saṅkrāntis* are auspicious occasions for making gifts ; so also are *dinakshayas*, *dina-chchhidras*[1] and *avamas*.[2]

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[1] For the explanation of these terms, see Hēmādri, *op. cit.* pp. 76,77.

[2] I may in passing point out that Mr. Dikshit's opinion (*Indian Calendar*, § 32, p. 18), that a day on which no *tithi* ends or on which two *tithis* end is regarded as inauspicious does not mean, as Mr. Sewell (in *Ind. Antiquary*, 1915, p. 167) seems to think, that such days are inauspicious occasions for making gifts, etc. A day on which two *tithis* end is called a *dinakshaya* or *avama* according as the civil day ends or does not end at the end of the second *tithi*. Both these occasions are, as we can see from the text above quoted, auspicious for gifts. And from a passage of the Dēvī Purāṇa (Hēmādri, *op. cit.* p. 78, l. 4), we learn that

It is with one or more of the above occasions or with *pūrṇimā* (which also is an auspicious occasion; see Hēmādri, *op. cit.*, p. 69, l. 3) that we find eclipses and Vyatīpāta honorifically associated.

16. Hēmādri also gives some texts which declare that certain occasions are equivalent in point of auspiciousness to lunar and solar eclipses; see *op. cit.* p. 76, ll. 2, 3 from bottom; p. 77, last four lines; p. 82, ll. 11, 12; p. 66, ll. 3—6, etc. Similarly he gives on pp. 69—70 texts which declare what occasions should be looked upon as Vyatīpāta. How far the inscriptions conform to these texts when they honorifically cite eclipses and Vyatīpāta is a matter that deserves investigation.

17. In passing, I may remark that it is not unlikely that other auspicious occasions besides Vyatīpāta and eclipses are cited honorifically in the inscriptions, and that, especially the citation of Vaidhṛiti and *saṅkrānti* seems on some occasions to be honorific. In the following date the *tithi amāvāsyā* seems to be honorifically cited:—

32.—*Ep. Carn*, VI, Kd. 29; p. 13^1—14; 21^3—10. A Kuṅkānāḍu inscription:—

Śaka-varisha 1118 Naḷa-saṁvatsarada Phāl[gu*]ṇa-śu 5 uttarāyaṇa-saṅkramāṇa-amāvāse-byatīpāta Ādivāradalu.

The equivalent is **Sunday, 23rd February, A.D. 1197**; on this day began su-5 of Phālguna at 9*gh.* 42*p.* after mean sunrise and on this day also fell the Mīna-saṅkrānti which occurred at 21*gh.* 40*p.* (S. S.) or 19*gh.* 15*p.* (A. S.) after mean sunrise on the preceding Saturday. The Jovian year current was Naḷa=Ś. 1118 expired.

The *yōgas* current on that day were Vaidhṛiti and Vishkambha and not Vyatīpāta; it is evident therefore that Vyatīpāta and *amāvāsyā* are honorifically cited here.

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dinakshayas and *tithi-vṛiddhis* (*i.e.*, *tithis* touching three civil days) are auspicious occasions for *hōma*, *dāna*, etc.

Such days, however, are not auspicious for performing marriages, *upanayanas*, *chūḍākarma*, *etc.*, and it is in this sense that Mr. Dikshit's sentence should be interpreted.

Uttarayana-Sankranti

18. It is evident from Kielhorn's remarks on *KLISI.* Nos. 198, 218 (*Ep. Indica*, VII, App. pp. 35, 39) that by this term he understood the Makara-saṅkrānti only. [1] The term itself, however, means a passing of the sun from one zodiacal sign to another in his northern course; and as the northern course of the sun lasts from the solar month Makara to Mithuna, corresponding roughly to the lunar months Pushya to Jyēshṭha, there does not seem to be any impropriety in describing the *saṅkrāntis* that occur in these latter months as *uttarāyaṇa-saṅkrāntis*. But the inscriptions go further than that and call *all saṅkrāntis*—northern as well as southern—as *uttarāyaṇa-saṅkrāntis*. In such cases therefore, the prefix *uttarāyaṇa* is clearly honorific, the reason for such honorific citation being no doubt the belief that the mention of *uttarāyaṇa* would increase the merit that is acquired by the gift made on that occasion (Cp. § 11 above). For the superiority in point of auspiciousness of the *Dakshiṇāyana-* and *Uttarāyaṇa-saṅkrāntis* proper (that is, of Karkāṭaka- and Makara-saṅkrāntis) over the other *saṅkrāntis*, see a text from the Varāha-purāṇa quoted by Hēmādri (*op. cit.* p. 69, ll. 3—7), according to which a *pūrṇimā*, an *amāvāsyā*, a *saṅkrānti*, a *Vishuva-saṅkrānti* (*i.e.*, Mēsha- and Tulā-saṅkrāntis), a *yugādi*, an *ayana-saṅkrānti* (*i.e.*, Karkāṭaka- and Makara-saṅkrāntis), a lunar eclipse, and a solar eclipse are, each, hundred times as auspicious as the preceding, while a Vyatīpāta is far beyond all these in auspiciousness.

Here follow a few examples of the honorific use of the term *uttarāyaṇa* in connection with *saṅkrāntis*:—

33.—*Ep. Carn.* VI, Kd. 34; p. 17[1]—15; 27[3]—27. Muttūru inscription of the time of the Hoysala Vishṇuvardhana:—

Śaka-varisham 1070 neya Vibhava-saṁvatsarada

[1] Similarly Mr. Svamikannu Pillai also; see for instance, his remarks on No. 475 of 1914 (Madras Epigraphist's Report for 1914—15, p. 77); No. 83 of 1913 (Madras Epigraphist's Report for 1913—14, p. 61); No. 114 of 1913 (*ibid.* p. 65), etc.

Śrāvaṇa-suddha-pañchamī uttarāyaṇa-saṅkrānti-vyatīpāta Sōmavārad=andu.

Ś. 1070=Vibhava by the southern luni-solar system; for this year the date is irregular. It is also irregular for the following year. But in the following year but one (see § 22 below), the *tithi* su-5 of solar Śrāvaṇa or Siṁha began at 7*gh.* 34*p.*, after mean sunrise on **Monday, 28th August, A.D. 1150**; and on this day, too, occurred the [*Kanyā-*] *saṅkrānti* at 2*gh.* 50*p.* after mean sunrise according to the Sūrya Siddhānta, and at 2*gh.* 39*p.* before mean sunrise according to the Ārya Siddhānta. This is the equivalent of the date given in the inscription.

34.—*Ep. Carn.* V, Hn. 69; p. 41[1]—last line; 56[3]—67. Mudugere inscription of the time of the Hoysala Narasiṁha I:—

uttarāyaṇa-saṅkrānti-nimittavāgi Saka-varsha 1077 neya Yuva-saṁvatsarada Māgha-suddha-trayōdasi-Vaḍḍavārad=andu.

Ś. 1077=Yuvan by the southern luni-solar system. For this Chaitrādi year, the date is irregular. In the following[1] year, Māgha-su 13 commenced on **Thursday**[2], **24th January, A.D. 1157**, at 10*gh.* 14*p.* after mean sunrise. The *saṅkrānti* had taken place at 11*gh.* 26*p.* (S. S.) or 10*gh.* 2*p.* (A. S.) after mean sunrise of the preceding day and was perhaps reckoned to fall on that day. See § 29 below.

35.—*Ep. Carn.* V, Ak. 103; p. 354[1]—25; 473[3]—55. Beḷagumba inscription of the time of Ballāḷa II:—

Saka-varsha 1123 neya Siddhārti-saṁvatsarada Śrāvaṇa . . . trayōdaśi Vaḍḍavāra uttarāyaṇa-saṅkramaṇa-vitīpātad=andu.

Siddhārthin by the southern luni-solar system=Ky. 4378[3] or Ś. 1121. The date is irregular for this year and for the following year. For the following year but one (see

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[1] For following years, see below § 19.

[2] For Vaḍḍavāra=Thursday, see below § 26.

[3] For other examples where the difference between Ky. and Śaka years is 3177 and not 3179 or 3178, see below § 24.

§ 22 below), the date yields good results as in that year Śrāvaṇa-ba 13 began at 29*gh.* 46*p.* after mean sunrise on **Saturday, 28th July, A. D. 1201**, and the *saṅkrānti* occurred on the same day at 13*gh.* 30*p.* (S. S.) or 5*gh.* 50*p.* (A. S.) after mean sunrise.

In the year preceding this Siddhārthin (=Ś. 1121) Śrāvaṇa-su 13 ended at 14*gh.* 12*p.* after mean sunrise on **Saturday, 18th July, A.D. 1198**, with which day was perhaps associated (see § 30 below) the tropical Siṁha-saṅkrānti which occurred according to the Sūrya Siddhānta at about 29*gh.* 24*p.* after mean sunrise of the preceding Friday.

One of the above two days[1] is the equivalent of the given date. For other instances, see Nos. 9, 11, 13, 15, 27, 29, 32, etc.

Next Years (Phalgunadi Years)

19. A good number of apparently irregular dates work out quite correctly for the following year to that cited in the inscription. At first I took these as examples of *Kārttikādi amānta* years on the analogy of the *Kārttikādi pūrṇimānta* southern Vikrama years; but on meeting with many examples of dates working out correctly for the months Kārttika—Phālguna of the next year, I have revised my opinion and am now inclined to think that these may perhaps be instances of Phālgunādi years, Phālguna meaning the solar Phālguna of southern India or Mīna. Nos. 167, 168 show that such Phālgunādi years must have commenced on the last day of the Mēshādi solar year.

I do not know if such Phālgunādi years were in use at any time; I call them by this name on the analogy of the Āshāḍhādi, Āśvinādi and Kārttikādi years which we know were—and are—in use at some places. As an alternative name, I would propose the term 'Next Year' thereby understanding the immediately following year. It is unnecessary to point out that the result remains the same, whatever name we may apply.

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[1] Here again the indeterminate result is due to the fortnight not being mentioned.

I subjoin here a few examples of dates of this type :—

36.—*Ep. Carn.* XI, Cd. 23; p. 12[1]—14; 16[3]—21. Gaṅjigaṭṭe inscription of the time of Ballāḷa II :—

Śaka-varsham 1128 Krōdhana-saṁvatsara-Chaitra-śuddha-paurnamī Sōmavāra saṅkramaṇa-vyatīpātam kūḍida śubha-dinadalu.

Ś. 1128 current=Krōdhana. In this year, su-15 of the Chaitra at the beginning ended at 27*gh.* 49*p.* after mean sunrise, on Tuesday, 5th April, A.D. 1205 while the Mēsha-saṅkrānti took place at 40*gh.* 5*p.* after mean sunrise of 23rd March, A.D. 1205, according to the Brahma Siddhānta, and at 47*gh.* 5*p.* and 43*gh.* 51*p.* after mean sunrise of 24th March, 1205, according to the Sūrya and Ārya Siddhāntas.

In the Chaitra at the end of the year, su-15 ended at 9*gh.* 49*p.* after mean sunrise on Sunday, 26th March, A.D. 1206 while the *saṅkrānti* occurred at 55*gh.* 36*p.* after mean sunrise of 23rd March, A.D. 1206 according to the Brahma Siddhānta, and at 0*gh.* 38*p.* before mean sunrise, or 2*gh.* 36*p.* after mean sunrise of 25th March, A.D. 1206, according to the Ārya and Sūrya Siddhāntas respectively.

In the year following, *i.e.*, in Ś. 1128 expired, su-15 of the solar[1] Chaitra (Mēsha or Chittirai) ended at 27*gh.* 24*p.* after mean sunrise on **Monday, 24th April, A.D. 1206**; on this day occurred the *saṅkrānti* at 58*gh.* 43*p.* or 54*gh.* 53*p.* after mean sunrise according to the Sūrya and Ārya Siddhāntas while according to the Brahma Siddhānta it occurred at 52*gh.* 3*p.* after mean sunrise of Sunday 23rd April, and must have been observed on Monday, 24th April, A.D. 1206. This day, evidently, is the day intended by the inscription.

37.—*Ep. Carn.* VII, Ci. 6; p. 314[1]—6; 427[3]—20. Kariganūr inscription of the time of Ballāḷa II :—

Saka-varsha 1142 neya Vikrama-saṁvatsarad-Āśāḍa-su 8 Sōmavāra dakshiṇāyana-saṅkramaṇa-byatīpātad=andu.

Ś. 1142=Vikrama. For this year, the date is irregular

[1] For solar and lunar months, see below § 31.

as the *tithi* Āshāḍha-su 8 commenced on Tuesday, 9th June, A. D. 1220, and ended on the following Wednesday while the Karkāṭaka-saṅkrānti took place on 25th June at 20*gh.* 36*p.* after mean sunrise according to the Brahma Siddhānta and on the 26th June at 39*gh.* 59*p.* or 32*gh.* 40*p.* after mean sunrise according to the Sūrya and Ārya Siddhāntas.

In the following year, Āshāḍha-su 8 ended at 55*gh.* 34*p.* after mean sunrise on **Monday, 28th June, A.D. 1221** ; on this day, too, must have been reckoned to fall the Karkaṭaka-saṅkrānti which had occurred at 55*gh.* 30*p.* (S. S.) or 48*gh.* 11*p.* (A. S.) after mean sunrise of the preceding day but one *i.e.*, of 26th June. See § 29 below.

38.—*Ep. Carn.* VII, Sk. 20 b; p. 90[1]—5; 135[3]—20. Bēgūr-agrahāra inscription dated—

Śaka-varsha 971 neya Virōdhi-saṁvatsarada Māghad=amāvāsye Maṅgaḷavāra-vyatīpāta-sūryyagrahaṇad=andu.

Ś. 971=Virōdhin. In this year, the *amāvāsyā* at the beginning of Māgha commenced on Tuesday, 26th December, A.D. 1049, and ended on the following day; but there was no eclipse on either of these days. The *amāvāsyā* at the end of Māgha ended on 25th January, A. D. 1050, on which day there took place an eclipse invisible in India; the week-day however was Thursday.

In the following year, the *amāvāsyā* at the beginning of Māgha ended on **Tuesday, 15th January, A.D. 1051**, on which day there took place a solar eclipse visible in India. Evidently this is the day intended by the inscription.

39.—*Ep. Carn.* XI, Hk. 33; p. 199[1]—4 from bottom; 340[3]—4. Āḍanūr inscription of the Rāshṭrakūṭa Akālavarsha Kannaradēva (*i.e.*, Kṛishṇa III):—

Saka-nripakāl-ātīta-saṁvatsa [ra-śataṁ*] ga 887 Krōdhana-saṁvatsaraṁ pravarttise tadvarshābhyaṁtarada Pausha-saptami Ādityavāram uttarāyaṇada-saṅkrāntiyandu.

Ś. 887 current=Krōdhana by the northern luni-solar

system ; in this year, Pushya-su 7 ended at 16*gh.* 16*p.* after mean sunrise on 14th December, A.D. 964. On this day, too, took place the tropical Makara-saṅkrānti at about 28*gh.* 24*p.* after mean sunrise according to the Brahma Siddhānta. The weekday however was Wednesday and not Monday.

The date is therefore irregular for this year. Similarly it is irregular for Ś. 887 expired also which corresponded to Krōdhana by the southern luni-solar system. In this year, Pushya-su 7 ended at 26*gh.* 26*p.* on 3rd December, A.D. 965, which was a Sunday but which was not associated with any *saṅkrānti*, sidereal or tropical.

In the year following Ś. 887, su-7 of solar Pushya or Makara began about 2*gh.* 42*p.* before mean sunrise on **Sunday, 20th January, A.D. 967**, and ended a few *palas* after mean sunrise on 21st January. The [Kumbha]-saṅkrānti, too, according to the Brahma Siddhānta took place on that day at 0*gh.* 44*p.* after mean sunrise. This day, evidently, is the one intended by the inscription.

40.—*Ep. Carn.* VIII, Nr. 59 ; p. 279[1]—4 from bottom ; 388[3] —13. Humcha inscription of the time of the W. Chālukya Trailōkyamalla :—

Saka-varsha 987 neya Viśvāvasu-saṁvatsaraṁ pravarttisuttam ire . . . . Māgha-māsada suddha-pañchamī Sōmavāramum-uttarāyaṇa-saṅkramaṇad=andu.

Ś. 987=Viśvāvasu by the southern luni-solar system. In this year Māgha-su 5 ended at 47*gh.* 17*p.* after mean sunrise on Tuesday, 3rd January, A.D. 1066. There was no *saṅkrānti*, sidereal or tropical, associated with that day. The date is thus irregular for this year.

In the following year, Māgha-su 5 ended at 43*gh.* 9*p.* after mean sunrise on **Monday, 22nd January, A.D. 1067.** On this day took place the Kumbha-saṅkrānti at 54*gh.* 9*p.* (S.S.) or 53*gh.* 9*p.* (A.S.) after mean sunrise. It is evident that this is the day intended by the inscription.

41.—*Ep. Carn.* VIII, Sb. 389 ; p. 143[1] —30; 184[3] —30 Elevāḷa inscription of the time of the Kaḷachuri Sōvidēva :—

Saka-nṛipa-kālātīta-saṁvatsaraṅgaḷu 1093 ṛeneya Nandana-saṁvatsara-Chaitra-śuddha-daśami Sōmavāram uttarāyaṇa-saṅkrānti-byatīpātam kūḍibanda puṇya-tithiyoḷu.

Ś. 1093† = Nandana by the southern luni-solar system. In the Chaitra at the beginning of this year, su-10 began on Monday, 6th March, A. D. 1172, and ended on the next Tuesday. There was however no *saṅkrānti* associated with either of these days. In the Chaitra at the end of this year su-10 began on 24th March, A. D. 1173, and ended on the next day. The Mēsha *saṅkrānti* occurred at 30*gh.* 16*p.* (S. S.) or 27*gh.* 11*p.* (A. S.) after mean sunrise of 24th March, A. D. 1173, and could therefore have been associated with either the 24th or the 25th (See § 29 below). The weekdays, however, were Saturday and Sunday respectively and not Monday. The date is therefore irregular for this year.

In the following year, su-10 of *solar* Chaitra or Mēsha (Chittirai) began at 34*gh.* 32*p.* after mean sunrise on **Monday, 23rd April, A.D. 1173** ; on this day, too, occurred the *saṅkrānti* at 23*gh.* 40*p.* after mean sunrise according to the Brahma Siddhānta. This, apparently, is the day intended by the inscription.

Previous Year

20. In a good number of inscriptions, again, the dates quoted, being irregular for the year cited therein, yield correct results for the immediately preceding year which is here, for the sake of brevity, called 'previous year'. The number of such instances shows unmistakably that this is not a mere accident, but that there existed a custom or practice according to which the wording of the dates was framed in this peculiar way. This comes out quite clearly from No. 467 of the Madras Epigraphist's Collection for 1915 which gives the same date twice over, once as 'Śaka 1417, Anala, Phālguna 5, Friday' and another time as

'Śaka 1417, Rākshasa, Phālguna-5, Friday.' The equivalent of the date is **Friday, 5th March, A.D. 1496.** On this day ended ba-5 of Phālguna of the southern luni-solar Rākshasa (=Ś. 1417 expired) at 26*gh.* 17*p.* after mean sunrise. The inscription therefore by citing Anala as the Jovian year in the first part, lets us know that there existed at that time and at that place the practice of framing the wording of a date in such a way that the year cited was the one that followed the year that was really intended.

I give here a few examples from the *Epigraphia Carnatica* for the previous year :

42.—*Ep. Carn.* V, Cn. 203; p. 482[1]—12; 639[3]—59. Kembāḷu inscription of the time of the Hoysala Sōmēśvara :—

Saka-varushada 1158 neya Manmatha-saṁvatsarada Śrāvaṇad=amāvāsye Bṛi || sūryya-grahaṇada dāna-mahōtsavadalu.

Ś. 1158 current=Manmatha. In this year there took place a solar eclipse visible in India on 15th August, A.D. 1235, the *amāvāsyā* at the end of Śrāvaṇa. The weekday however was not Bṛihavāra (=Thursday or Saturday; see § 26 below) but Wednesday. The date is therefore irregular for this year.

In the year preceding, *i.e.*, in Ś. 1156, there took place a solar eclipse visible in India on 26th August, A.D. 1234, the *amāvāsyā* at the end of [nija]-Śrāvaṇa. The weekday in this case was Saturday.

It is evident that the day intended by the inscription is this **Saturday, 26th August, A.D. 1234.**

43.—*Ep. Carn.* VI, Kd. 21, p. 11[1] —9; 16[3] —22. Yeḷḷambaḷase inscription of the time of Poysaḷa-dēva :—

Chāḷokya-Vikrama-kāḷada 13 neya Vibhava-saṁvatsarada Pusya-bahu 14 Ādityavārad=uttarāyaṇa-saṅkrāntiy=andu.

Chā. Vi. 13=current Vibhava (Ś. 1010). For this year, the date is irregular as the *tithi* bahula-14 of Pushya of

this year began on Friday, 12th January, A.D. 1089, and ended on the next day, Saturday, 13th January.

In the previous year, Pushya-ba 14 ended at 50*gh.* 2*p.* after mean sunrise on Sunday, 26th December, A.D. 1087. The Makara-saṅkrānti, too, took place at 53*gh.* 18*p.* (S.S.) or 51*gh.* 41*p.* (A.S.) after mean sunrise of 24th December and could have been, according to one usage, (see § 29 below) associated with the above Sunday. The day intended by the inscription is therefore this **Sunday, 26th December, A.D. 1088.**

44.—*Ep. Carn.* VI, Kd. 77; p. 48[1]—7; 75[3]—26. Chaṭṭanahaḷḷi inscription of the time of Ballāḷa II :—

Śaka-varshada 1116 ṛaneya Ānanda-saṁvatsarada Vaiśākha-bahuḷa 7 Vaḍḍavāra uttarāyaṇa-saṅkramaṇadalu.

Ś. 1116=Ānanda. In this year, Vaiśākha-ba 7 ended at 23*gh.* 37*p.* after mean sunrise of Saturday, 14th May, A.D. 1194. On that day, too, took place the tropical Mithuna-saṅkrānti at about 7*gh.* 12*p.* according to the Ārya Siddhānta.

In the previous year, Vaiśākha-ba 7 commenced at 33*gh.* 16*p.* after mean sunrise on **Saturday, 24th April, A.D. 1193.** On this day took place the sidereal Vṛishabha-saṅkrānti at 36*gh.* 53*p.* (S.S.) or 33*gh.* 6*p.* (A.S.) after mean sunrise. It is more probable that this latter day is the day intended by the inscription, and not the former one.

45.—*Ep. Carn.* XII, Pg. 35; p. 199[1]—8; 362[3]—13. Arasikere inscription of Lakmā-dēvi, queen of Tribhuvanamalla-Mallidēva-Chōḷa-mahārāja; *ibid.*, Si. 23; p. 158[1]—19; 265[3]—108. Kāmagoṇḍanahaḷḷi inscription of Sītādēvi, another queen of above :—

Śaka-nṛipa-varshaṅgaḷu 1090 neya Sarvajitu-saṁvatsarada akshayatadigey-amāvāsyey=Ādivārad=andu sūrrya-grahaṇa-kāla.

The term 'akshaya-tadigey-amāvāsye' is ambiguous as it can be applied to the *amāvāsyā* preceding it—*viz.*, Chaitra-amāvāsyā—as well as to the *amāvāsyā* following it—Vaiśākha-amāvāsyā.

Here it seems to be used in the latter sense. In Ś. 1090 current=Sarvajit, Chaitra-amāvāsyā ended on Friday, 21st April, A.D. 1167; on this day there occurred a solar eclipse visible in India. In the same year, Vaiśākha-amāvāsyā ended on Saturday, 20th May. Thus the date is irregular for the year cited.

In the previous year, Chaitra-amāvāsyā ended on Saturday, 2nd April, A.D. 1166, and the Vaiśākha-amāvāsyā ended on **Sunday, 1st May, A.D. 1166.** On this latter day there occurred a solar eclipse visible in India. It is clear that this is the day intended by the inscription.

46.—*Ep. Carn.* V, Ak. 61; p. 307[1]—25; 414[3]—43. Hoḷalakere inscription of the time of Ballāḷa II:—

Saka-varusha 1108 Visvāvasu-saṁvatsarada Jēshṭa suddha-trayōdasi-Vaḍḍavāra uttarāyaṇa-saṅkramaṇa-vyatīpātad=andu.

Ś. 1108 current=Viśvāvasu; for this year the date is irregular. For the previous year, Jyēshṭha-su 13 was current at sunrise and for the whole day of **Thursday, 24th May, A.D. 1184,** on which day the *saṅkrānti* according to the Brahma Siddhānta occurred at 36*gh.* 37p. after mean sunrise.

47.—*No. 123 of the Madras Epigraphist's Collection for 1913.* Magala inscription of the time of Ballāḷa II:—

"Śaka 1131, Śukla; Śrāvana-śu-di-paurṇamī Monday, lunar eclipse, Karkaṭaka-saṅkramaṇa, Vyatīpāta."

Ś. 1131 expired = Śukla; in this year Śrāvaṇa-su 15 ended on 18th July, A.D. 1109 on which day there took place a lunar eclipse visible in India. But there was no *saṅkrānti*—sidereal or tropical—associated with that day; and the weekday too was not Monday but Saturday. The date is thus irregular for this year.

In the previous year, Śrāvaṇa-su 15 commenced at 8*gh.* 50*p.* after mean sunrise on **Monday, 28th July, A.D. 1108.** On this day took place the Siṁha-saṅkrānti at 2*gh.* 11*p.* after mean sunrise (S.S.) or 5*gh.* 31*p.* before mean sunrise (A.S.); and there also occurred on this day a lunar eclipse

invisible in India. This day therefore is the one intended by the inscription.

It may be pointed that *Karkaṭaka-saṅkrānti* in the inscription is a mistake for *Siṁha-saṅkrānti;* the former cannot fall in the month of Śrāvaṇa.

48.—*Ep. Carn.* VI, Kd. 118; p. 66^{1}—30; 106^{3}—45. Biṭṭēnahaḷḷi inscription of the time of Ballāḷa II:—

Śaka-varsa 1134 neya Prajāpati-saṁvatsarada Pushya-suddha-ēkādasī-Sōmavāra uttarāyaṇa-saṅkramaṇadalu.

Ś. 1134 current=Prajāpati; for this year the date is irregular. In the previous year, Pushya-su 11 began at 15*gh.* 56*p.* after mean sunrise on **Monday, 27th December, A.D. 1210.** The *saṅkrānti* occurred at 44*gh.* 0*p.* (S.S.) after mean sunrise of Saturday, 25th December and was perhaps observed on Monday the 27th December. See § 29 below.

49.—*Ep. Carn.* VII, Sk. 11; p. 83^{1}—9; 127^{3}—13. Gāma inscription of the time of the W. Chālukya Tribhuvanamalla:—

Sakha-varsha 984 neya Śubha[kṛi]t-saṁvatsarada Puśya-su 10 uttarāyaṇa-saṅkrānti Ādityavāra.

Ś. 984=Śubhakṛit; for this year the date is irregular.[1] In the previous year, Pushya-su 10 commenced at 50*gh.* 56*p.* after mean sunrise on **Sunday, 23rd December, A.D. 1061;** on this day, too, took place the Makara-saṅkrānti according to the Brahma Siddhānta at 8*gh.* 9*p.* after mean sunrise.

Following Years and Previous Years of Northern luni-solar and Mean-sign Jovian Years

21. I have shown above (§ 8) that in many dates the Jovian years are really cited according to the northern luni-solar and mean-sign systems, although, being combined

[1] That is, if we consider the *saṅkrānti* to be the sidereal *saṅkrānti.* Otherwise, the date is regular for Ś. 984 for the tropical *saṅkrānti.* The equivalent in this case would be Sunday, 12th January, A.D. 1063; on this day ended at 50*gh.* 5*p.* after mean sunrise the *tithi* su-10 of *solar* Pushya or Makara, and the tropical Kumbha-saṅkrānti occurred according to the Brahma Siddhānta at about 36*gh.* 31*p.* after mean sunrise.

with wrong[1] Śaka years they appear to belong to the southern luni-solar system. I have also shown above (§§ 19, 20) that in many inscriptions, the dates given work out regularly for the year preceding or following the year cited and not for the cited year itself. As the examples given above (Nos. 36—49) of such dates all refer to southern luni-solar Jovian years, I subjoin here a few examples referring to northern luni-solar and mean-sign Jovian years. As already indicated above, it is only after an examination of the date that one is able in such cases to find out that the Jovian year is cited according to the northern luni-solar or mean-sign system.[2]

For Previous Years :—

50.—*Ep. Carn.* VI, Kd. 66; p. 43^{1}—19; 64^{3}—64. Brahmasamudra inscription of the reign of the Hoysala Narasiṁha I:—

Śaka-varsha sāsirada-tombhatta-nālkaneya Nandana-saṁvatsarada Pushya-suddha-ēkādaśiy=Ādivārad=uttarāyaṇa-saṅkramaṇad=andu.

Ś. 1094=Nandana by the southern luni-solar system; for this year the date is irregular. It is also irregular for Ś. 1090 which was Nandana by the northern luni-solar system, and for the mean-sign Nandana which ran from 20th February, A.D. 1168 to 15th February, A.D. 1169, according to the Brahma Siddhānta. In the year preceding this northern luni-solar or mean-sign Nandana, Pushya-su 11 ended at 14*gh.* 22*p.* after mean sunrise on **Sunday, 24th December, A.D. 1167**; on this day, too, there occurred the Makara-saṅkrānti at 30*gh.* 42*p.* after mean sunrise according to the Brahma Siddhānta. This seems to be, therefore, the day intended by the inscription. For another possible equivalent of this, see No. 108.

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[1] See however § 78 below.

[2] The nature of these years is such, that as a rule we find the Previous Year associated with the mean-sign Jovian year, and the Next Year (or Following Year) with the northern luni-solar Jovian year.

51.—*Ep. Carn.* VII, Sk. 296; p. 262[1]—last line; 344[3]—5. Tumbarahosūru inscription of the time of the W. Chālukya Trailōkyamalla :—

Saka-varsha 986 neya Krōdhi-saṁvatsara Pushya-bahuḷa 13 Ādityavāra uttarāyaṇa-saṅkrāntiy=andu.

Ś. 986=Krōdhin by the southern luni-solar system; for this year the date is irregular; it is also irregular for Ś. 984=Krōdhin by the northern luni-solar system and for the mean-sign Krōdhin which ran from 11th July, A.D. 1061 to 7th July, A.D. 1062.

In the year previous to this mean-sign Krōdhin—*i.e.*, in the mean-sign Śobhana or Śōbhakṛit, ba-13 of the lunar month Pushya ended at 39*gh.* 8*p.* on 23rd December, A.D. 1060; on this day, too, occurred the Makara-saṅkrānti at 54*gh.* 7*p.* (S. S.) or 52*gh.* 38*p.* (A. S.) after mean sunrise. The weekday however was Saturday and not Sunday. In the same year, ba-13 of the *solar* Pushya (Makara or Tai) commenced at 20*gh.* 15*p.* after mean sunrise on **Sunday, 22nd January, A. D. 1061**; on this day occurred the *saṅkrānti*, at 21*gh.* 0*p.* (S. S.) or 20*gh.* 2*p.* (A. S.) after mean sunrise. One of the above two days, preferably the latter, is the equivalent of the given date.

52.—*Ep. Carn.* VII, Ci. 64; p. 337[1]—last line; 462[3]—51. Alakanāḷu inscription of the time of Ballāḷa II :—

Saka-varshada 11 . . neya Srīmukha-saṁvatsarada Phālguṇa-suddha 5 Bṛihaspativārad=andu uttarāyaṇa-saṅkrānti-vyatīpāta.

In Ballāḷa II's reign Śrīmukha by the southern luni-solar system=Ś. 1135. For this year, the date is irregular; it is also irregular for Ś. 1131=Śrīmukha by the northern luni-solar system, and for the mean-sign Śrīmukha which ran from 21st October, A.D. 1208 to 17th October, A. D. 1209. In the year previous to this Śrīmukha—that is, in the mean-sign Āṅgirasa (26th October, A. D. 1207 to 21st October, A. D. 1208), Phālguna-su 5 ended at 45*gh.* 31*p.* after mean sunrise on **22nd February, A. D. 1208**; on this day,

too, occurred the *saṅkrānti*, according to the Brahma Siddhānta at 5*gh.* 44*p.* after mean sunrise. The weekday however was **Friday** and not Thursday.

In the same year, Māgha-su 5 ended at 4*gh.* 42*p.* after mean sunrise on **Thursday, 24th January, A. D. 1208.** On this day was perhaps observed the *saṅkrānti* which took place at 23*gh.* 14*p.* (S. S.) or 21*gh.* 36*p.* (A. S.) after mean sunrise of the preceding Wednesday. (See § 29 below). The inscription therefore seems to cite wrongly either the weekday or the month; the equivalent, accordingly, is either the first or the second of the days given above.

53.—*Ep. Carn.* V, Ak. 117; p. 373[1]—1; 493[3]—39. Kallaṅgere inscription of the time of the Hoysala Narasiṁha I :—

śrīmatu Chāḷukya-Vikrama-kālada 85 neya Vikrama-saṁvatsarada Māghad=amāvāse Sōmavāra uttarāyaṇa-saṅkramaṇa-vyatīpātad=andu.

Chā. Vi. 85 current corresponds, on the supposition that this era commenced in Ś. 998, to Ś. 1082 which was Vikrama by the southern luni-solar system. In this year the *amāvāsyā* at the beginning of Māgha ended on Thursday, 29th December, A. D. 1160, and that at the end of Māgha ended on Saturday, 28th January, A. D. 1161. No *saṅkrānti*, sidereal or tropical, was associated with either of the above days. The date is therefore irregular for this year.

Vikrama by the northern luni-solar system corresponded to Ś. 1079; for this year the date is irregular.

Vikrama by the mean-sign system began on 1st June, A.D. 1156. In this year, Māgha-amāvāsyā ended on Monday, 11th February, A. D. 1157, on which day the tropical Mīna-saṅkrānti took place at about 4*gh.* 12*p.* after mean sunrise according to the Ārya Siddhānta.

In the year preceding the mean-sign Vikrama, that is, in mean-sign Pramāthin (6th June, 1155—1st June, 1156), Māgha-amāvāsyā began at 26*gh.* 11*p.* after mean sunrise

on **Monday, 23rd January, A. D. 1156.** On this day took place the sidereal Kumbha-saṅkrānti at 55*gh.* 54*p.* (S. S.) or 54*gh.* 31*p.* (A. S.) after mean sunrise. It is probable that the day intended by the inscription is this Monday—*i. e.*, the 23rd of January, A. D. 1156 and not Monday, 11th February, A. D. 1157.

54.—*Ep. Carn.* V, Ak. 108 ; p. 364[1]—2 from bottom 483[3]—77. Hiriyūr inscription of the Hoysala Sōmēśvara :—

Saka-nṛipa-varusha 1177 Ānanda-saṁvatsarada Pushya-su 11 Sō-Ārdrā-nakshatra-vyatīpāta-uttarāyaṇa-saṅkramaṇad=andu.

Ś. 1177 current=Ānanda by the southern luni-solar system. In this year, Pushya-su 11 ended at 46*gh.* 33*p.* after mean sunrise on 21st December, A. D. 1254 which *was* a Monday ; but the *nakshatra* on that day was not Ārdrā but Kṛittikā (ending) and Rōhiṇī (beginning) and there was no *saṅkrānti* associated with that day. The date is therefore irregular for this year.

The date is also irregular for the northern luni-solar Ānanda (=Ś. 1172) and for the mean-sign Ānanda (2nd May, A.D. 1249—28th April, A.D. 1250). In the year preceding this latter Ānanda, that is, in the mean-sign Pramādicha or Pramādin, (6th May, A.D. 1248—2nd May, 1249), su-11 of *solar* Pushya or Makara (Tai), began, according to the Brahma Siddhānta at 37*gh.* 31*p.* after mean sunrise on **Monday, 25th January, A.D. 1249,** while the *nakshatra* Ārdrā according to the Brahma Siddhānta system of unequal spaces began at 55*gh.* 52*p.* after mean sunrise on that day. The sidereal Kumbha-saṅkrānti took place on Saturday, 23rd January, at 59*gh.* 46*p.* (S.S.) or 57*gh.* 57*p.* (A.S.) and would have been, according to the Bengal usage, (see § 29 below) associated with Monday, 25th January. This day therefore seems to be the one intended by the inscription.

It may here be pointed out that in Ś. 1173—*i.e.*, in the year following northern luni-solar Ānanda, su-11 of lunar

Pushya ended at 17*gh.* 42*p.* after mean sunrise on Monday, 25th December, A.D.1251 on which day the Makara-saṅkrānti took place at 13*gh.* 13*p.* after mean sunrise according to the Brahma Siddhānta. The *nakshatra* however on that day was not Ārdrā[1] but Kṛittikā (ending) and Rōhiṇī (beginning). This Monday therefore is not the day intended by the inscription.

55.—*No. 517 of the Madras Epigraphist's Collection for 1915.* A Chinna-Tumbulam inscription of the W. Chālukya Jagadēkamalla II gives the following date:—

"Yuva, Paushya.....5, Monday, *uttarāyaṇa-saṅkrānti.*"

This date is irregular for the southern luni-solar Yuvan (=Ś. 1077) the northern luni-solar Yuvan (=Ś. 1074) and the mean-sign Yuvan (23rd June, 1151—18th June, 1152 A.D.).

In the year previous to the mean-sign Yuvan, *i.e.*, in the mean-sign Bhāva (27th June, 1150—23rd June, 1151), Pushya-su 5 commenced at 9*gh.* 13*p.* after mean sunrise on **Monday, 25th December, A.D. 1150.** On this day occurred the Makara-saṅkrānti at 11*gh.* 23*p.* (S. S.) or 9*gh.* 30*p.* (A. S.) after mean sunrise. This, therefore, is the day intended by the inscription.

56.—*No. 114 of the Madras Epigraphist's Collection for 1913.* Nilagunda inscription of the time of the W. Chālukya Vikramāditya VI Tribhuvanamalla:—

"Chālukya-Vikrama year 35, Vikṛiti, Bhāḍrapada-ba-di-11, Sunday, uttarāyaṇa-saṅkrānti-vyatīpāta."

On the supposition that the Chālukya-Vikrama era commenced in Ś. 998, Chā. Vi. 35 current or Ś. 1032 corresponded to Vikṛiti by the southern luni-solar system. And for this year, Mr. Svamikannu Pillai (p. 65, Madras Epigraphist's report for 1913-14) gives the equivalent as Sunday, 11th September, A.D. 1110. There, however,

[1] In fact, su-11 of lunar Pushya cannot, under any circumstances, occur in association with Ārdrā.

occurred no *saṅkrānti*—tropical or sidereal—on this day, which is not therefore the one intended by the inscription.

The date is thus irregular for the above Vikṛiti. It is also irregular for the northern luni-solar Vikṛiti=Ś. 1107 and for the mean-sign Vikṛiti (30th December, 1106—26th December, 1107). In the year preceding the latter Vikṛiti, *i.e.*, in the mean-sign Virōdhin (3rd January, 1105—30th December, 1106) Bhādrapada-ba 11 ended at 56*gh.* 49*p.* after mean sunrise on **Sunday, 26th August, A.D. 1106.** On this day, too, occurred the Kanyā-saṅkrānti at 33*gh.* 11*p.* after mean sunrise according to the Brahma Siddhānta. This therefore is the day intended by the inscription.

57.—*Ep. Carn.* XII, Gb. 34; p. 43[1]—8 from bottom; 72[3]—37. Yiḍagūru inscription of the Hoysala Vishṇuvardhana:—

Saka-varsha 1055 neya Pramādi-saṁvatsarada Pusya-suddha [1*] Ādivāra sūryagrahaṇa uttarāyaṇa-saṅkrānti-vyatīpātad=andu.

Ś. 1055 expired=Pramādin by the southern luni-solar system. In this year, Pushya-su 1 began on Tuesday, 28th November, A. D. 1133 at 30*gh.* 54*p.* after mean sunrise and ended on the following day. There was no *saṅkrānti* associated with either of these days. The date is therefore irregular for this year.

It is similarly irregular for the northern luni-solar Pramādin=Ś. 1052 and for the mean-sign Pramādin, which began on 23rd September, A. D. 1129. In the year preceding this latter Pramādin, that is, in the mean-sign Paridhāvin, Pushya-su 1 began on **Sunday, 23rd December, A. D. 1128.** On this day took place the Makara-saṅkrānti at 26*gh.* 21*p.* after mean sunrise, according to the Brahma Siddhānta. There was no solar eclipse and no Vyatīpāta on this day. Nevertheless, this Sunday is the day intended by the inscription; and the mention of the eclipse and of Vyatīpāta should be regarded as honorific.

For Next Years:—

58.—*Ep. Carn.* VI, Kd. 28, p. 12[1]—5 (from bottom); 20[3]—27. Mugaḷikaṭṭe inscription of the time of Narasiṁha I:—

Śaka-varisa 1075 neya Śrīmukha-saṁvatsarada Pushya-suddha 14 Sōmavāra uttarāyaṇa-saṅkrānti-vyatīpātad=andu.

Ś. 1075 expired=Śrīmukha by the southern luni-solar system. For this year and for the following and preceding years, the date is irregular. It is also irregular for the northern luni-solar Śrīmukha=Ś. 1072 and for the mean-sign Śrīmukha which began on 1st July, A. D. 1149. In the year following the northern luni-solar Śrīmukha, however, Pushya-su 14 ended at 19*gh.* 30*p.* after mean sunrise on **Monday, 24th December, A. D. 1151**; on this day took place the *saṅkrānti* according to the Brahma Siddhānta at 22*gh.* 36*p.* after mean sunrise. This is evidently the day intended by the inscription.

59.—*Ep. Carn.* VI, Kd. 96; p. 56[1]—33; 89[3]—68. Santekere inscription of the time of the Hoysala Vishṇuvardhana:—

Śaka-varisham sā 1063 neya Durmmati-saṁvatsarada Āśvayujad=amāvāsye Sōmavāra sūrya-grahaṇa-saṅkramaṇad=andu.

Ś. 1063 expired=Durmati by the southern luni-solar system. In this year, there took place a solar eclipse visible in India on 2nd September, A. D. 1141, the *amāvāsyā* at the beginning of Āśvayuja. There was however no *saṅkrānti*—tropical or sidereal—on that day and the weekday too was Tuesday and not Monday. The date is therefore irregular for this year. It is also irregular for the preceding and following years, for the northern luni-solar Durmati=Ś. 1060 and for the mean-sign Durmati which began on 21st August, A. D. 1137. In the year following the northern luni-solar Durmati however—*i.e.*, in Ś. 1061—there took place a solar eclipse invisible in India on **25th September, A. D. 1139**, the *amāvāsyā* at the beginning of Āśvayuja. The *saṅkrānti* did not occur on that day but occurred on the

next day at 34*gh.* 48*p.* after mean sunrise according to the Brahma Siddhānta. It was thus near enough to 25th September to be associated with it. The weekday was **Monday.** It is evident that this **Monday, 25th September, A. D. 1139,** is the day intended by the inscription.

60.—*Ep. Carn.* VIII, Sb. 554, p. 172[1]—1; p. 241[3]—2. An inscription at Hesare gives the date as follows :—

Śālivāhana-śaka varusa 1418 neya Rākshasa-saṁvatsarada Mārggasira-śuddha 15 Sōmavāra sōmōparāga-puṇyakāladalu.

Ś. 1418† = Rākshasa by the southern luni-solar system. For this year, and for the northern luni-solar Rākshasa also (=Ś. 1410) the date is irregular. In the year following the latter Rākshasa, *i.e.*, in Ś. 1411, Mārgaśira-su 15 ended on **Monday, 7th December, A.D. 1489.** On this day, too, took place a lunar eclipse visible in India. This, clearly, is the day intended by the inscription.

61.—*Ep. Carn.* VIII, Sb. 140; p. 47[1]—23; 60[3]—80. Udri inscription of the time of Ballāḷa II :—

Saka-varsha 1119 neya Piṅgaḷa-saṁvatsarada Māgha-śuddha 12 Vaḍḍavārav = uttarāyaṇa-saṅkrānti-vyatīpātad = andu.

Ś. 1119 = Piṅgala by the southern luni-solar system. For this year, as well as for the northern luni-solar Piṅgala (=Ś. 1115), the date is irregular. In the year following the latter Piṅgala, however, *i.e.*, in Ś. 1116, su-12 of solar [1] Māgha or Kumbha ended at 19*gh.* 12*p.* after mean sunrise on **Thursday, 23rd February, A.D. 1195;** on that day, too, must have been observed the [*Mīna-*] *saṅkrānti* which occurred at 50*gh.* 37*p.* (S.S.) or 48*gh.* 19*p.* (A.S.) after mean sunrise of the preceding day. This Thursday is the day intended by the inscription.

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[1] Su-12 of lunar Māgha of this year ended on 24th January, A.D. 1195, on which day occurred the sidereal Kumbha-saṅkrānti at 1*gh.* 24*p.* after mean sunrise according to the Sūrya Siddhānta. The weekday, however, was Wednesday; and therefore this cannot be the day intended by the inscription.

62.—*Ep. Carn.* VIII, Sb. 510; p. 165[1]—5; 227[3]—3. Chiṭṭūru inscription of the time of the W. Chāḷukya Trailōkyamalla (Tailapa III):—

śrīmach - Chāḷukya - Traiḷōkyamalladēva - varshada 4 neya Śrīmukha-saṁvatsarada Pushyada-puṇṇami Sōmavāra uttarāyaṇa-saṅkramaṇa-vyatīpātad=andu.

The fourth year current of Tailapa III[1]=Ś. 1075, which was Śrīmukha by the southern luni-solar system. For this year, and for the northern luni-solar Śrīmukha (=Ś. 1072) also, the date is irregular. In the year following the latter Śrīmukha, Pushya-su 15 began at 19*gh.* 30*p.* after mean sunrise on **Monday, 24th December, A.D. 1151**; on this day, too, occurred the Makara-saṅkrānti at 22*gh.* 36*p.* after mean sunrise according to the Brahma Siddhānta. This is the day intended by the inscription.

Next Year but One

22. In the inscriptions there occur a few dates which yield correct results, not for the year cited therein, not even for the next year, but for the next year but one. I give below some examples of this class:—

63.—*Ep. Carn.* VII, Sk. 292; p. 261[1]—11; 341[3]—19. Mattikōṭe inscription registering a private grant:—

śrīmach-Chāḷukya-Vikrama-varshada prathamanaya Naḷa-saṁvatsarada Pushya-ba 3 Sōmavāram=uttarāyaṇa-saṅkrānti-parbba-nimittadin.

This date is irregular for Ś. 998 (=Naḷa) and for Ś. 999 the following year while it works out quite correctly for Ś. 1000, the next year but one. The equivalent is **Monday, 23rd December, A.D. 1078**; on this day Pushya-ba 3 ended at 25*gh.* 54*p.* after mean sunrise and the *saṅkrānti* took place at 33*gh.* 34*p.* (S.S.) or 32*gh.* 1*p.* (A.S.) after mean sunrise.

64.—*Ep. Carn.* XI, Dg. 128; p. 132[1]—16; 187[3]—29.

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[1] That is, according to the generally-received opinion that his reign began in Ś. 1072.

Huvvinamaḍagu inscription of the time of the W. Chālukya Vikramāditya VI Tribhuvanamalla :—

śrīmach-Chāḷukya-kālada 32 neya Ṣarvvajitu-saṁvatsarada Mārggaśirad-amāvāse-Bṛihaspativāra uttarāyaṇa-saṅkramaṇa-byatīpāta-nimityam=āgi.

This date is irregular for Ś. 1029=Sarvajit, and for the following year. It is correct for Ś. 1031, the next year but one. The equivalent is **Thursday, 23rd December, A.D. 1109.** On this day, Mārgaśira-amāvāsyā ended at 29*gh.* 38*p.* after mean sunrise according to the Brahma Siddhānta, and the Makara-saṅkrānti according to the same Siddhānta took place at 31*gh.* 20*p.* after mean sunrise.

65.—*Ep. Carn.* VIII, Sa. 118; p. 221[1]—1; 314[3]—4. Mallandūr inscription of the time of the W. Chālukya Sōmēśvara I Trailōkyamalla :—

Saka-varsha 983 neya Subhakṛitu-saṁvatsarada Māgha-śuddha-trayōdaśi Sōmavāram=uttarāyaṇa-saṅkrāntiy=andu.

Ś. 983 current=Śubhakṛit by the northern luni-solar system. In this year, Māgha-su 13 began on Friday, 5th January, A.D. 1061 and ended on the following Saturday. There was moreover no *saṅkrānti* associated with either of the above days; the date is therefore irregular for this year. The date is likewise irregular for the mean-sign and for the southern luni-solar Śubhakṛit (=Ś. 984). In the year but one following the latter Śubhakṛit, su-13 of solar Māgha or Kumbha ended at 41*gh.* 28*p.* after mean sunrise on **Monday, 21st February, A.D. 1065,** while the Mīna-saṅkrānti occurred on that day at 12*gh.* 19*p.* (S.S.) or 10*gh.* 37*p.* (A.S.) after mean sunrise. This seems to be the day intended by the inscription.

Previous Year but One

23. Similarly, there occur in the inscriptions a few dates which work out correctly not for the previous year but for the previous year but one. I subjoin here a few examples of this type :—

66.—*Ep. Carn.* XI, Dg. 151; p. 140[1]—3; 203[3]—37.

Kaḍaganūru inscription of the time of the W. Chālukya Vikramāditya VI Tribhuvanamalla :—

śrī-Chāḷukya-Vikrama 25 neya Vikrama-saṁvatsarada Pushya-bahuḷa-10-daśami Ādivāram=uttarāyaṇa-saṅkramaṇad=andu.

This date is irregular for Ś. 1022=Vikrama; it is also irregular for Ś. 1019=northern luni-solar Vikrama. But for the previous year but one to this latter Vikrama, that is to say, for Ś. 1017 the date works out correctly; the equivalent is **Sunday, 23rd December, A.D. 1095**, on which day Pushya-ba 10 began at 13*gh.* 36*p.* after mean sunrise, and the Makara-saṅkrānti according to the Brahma Siddhānta took place at 54*gh.* 26*p.* after mean sunrise.

67.—*Ep. Carn.* VI, Tk. 45; p. 229[1]—6; 440[3]—100. Amṛitāpura inscription of the time of Ballāḷa II :—

Saka-varsham 1119 neya Piṅgaḷa-saṁvatsarada Pushya-bahuḷa - saptami Sōmavārad=uttarāyaṇa-saṅkramaṇad=andu.

Ś. 1119=Piṅgaḷa by the southern luni-solar system. For this year and for the year preceding, the above date is irregular. For the previous year but one however, *i.e.*, for Ś. 1117, the date works out regularly, and the equivalent is **Monday, 25th December, A.D. 1195.** On this day Pushya-ba 7 ended at 12*gh.* 2*p.* after mean sunrise, and the *saṅkrānti* occurred at 50*gh.* 2*p.* (S.S.) or 47*gh.* 56*p.* (A.S.) after mean sunrise.

68.—*Ep. Carn.* VIII, Sb. 132; p. 37[1]—18; 50[3]—35. Hirē-Āvaḷi inscription of the time of the W. Chālukya Jagadēkamalla II :—

Saka-varsha 1074 neya Prajāpati-saṁvatsarada Pushya-suddha 10 Sōmavāra byatīpātam=uttarāyaṇa-saṇkramāṇad=andu.

Ś. 1074 current=Prajāpati by the southern luni-solar system. In this year, Pushya-su 10 began on Wednesday, 19th December, A.D. 1151 and ended on Thursday the 20th December. There was, besides, no *saṅkrānti*—sidereal or

tropical—associated with either of the above days. The date is thus irregular for Ś. 1074 current.

Prajāpati by the northern luni-solar system=Ś. 1070. For this year, and for the mean-sign Prajāpati also (began on 10th July, 1147) the date is likewise irregular. In the year but one preceding the latter Prajāpati, Pushya-su 10 began at 31*gh.* 42*p.* after mean sunrise on **Monday, 24th December, A.D. 1145**, while the *saṅkrānti* took place on that day at 53*gh.* 46*p.* (S.S.) or 51*gh.* 55*p.* (A.S.) after mean sunrise. This seems to be the day intended by the inscription.

69.—*Ep. Carn.* V, Ak. 138; p. 401[1]—24; 529[3]—34. Muruṇḍi inscription of the time of Ballāḷa II:—

Śaka-varshada 1096 neya Jaya-saṁvatsarada Vaiśākhad =amāvāsye Sōmavāra byatīpāta sūryyagrahaṇad=andu.

Ś. 1096=Jaya by the southern luni-solar system, and Ś. 1092=Jaya by the northern luni-solar system. The date is irregular for both of these years. In Ś. 1094, the year but one preceding the southern luni-solar Jaya or the year but one following the northern luni-solar Jaya, Vaiśākha-amāvāsyā ended at 52*gh.* 7*p.* after mean sunrise on **Monday, 24th April, A. D. 1172.** On this day, took place the *saṅkrānti* at 10*gh.* 51*p.* (S.S.) or 7*gh.* 10*p.* (A.S.) after mean sunrise. This, evidently, is the day intended by the inscription. As there was no solar eclipse on that day its mention here must be regarded as honorific.

70.—*Ep. Carn.* V, Cn. 210; p. 489[1]—9 from bottom; 647[3]—53. Bidare inscription of the time of Ballāḷa II:—

Saka-varuśa sāsirada embhatta-ēḷaneya 1087 Tāraṇa-saṁvatsarada Phālguṇa-suddha-pañchamī Sōmavāra vyatīpāta-saṅkramaṇadalu.

Ś. 1087 current=Tāraṇa by the southern luni-solar system, and Ś. 1083=Tāraṇa by the northern luni-solar system. For these two years, the date is irregular. It is also irregular for the mean sign Tāraṇa which began on 16th May, 1160. But in the year but one preceding this Tāraṇa, Phālguna-su 5 began at 46*gh.* 58*p.* after mean sunrise on **Monday, 23rd February, A. D. 1159.** On this day, too, must

have been observed the Mina-saṅkrānti which took place at 29*gh.* 34*p.* (A.S.) or 31*gh.* 42*p.* (S.S.) after mean sunrise of the preceding Sunday. This day, therefore, is the one intended by the inscription.

Saka Years and Kaliyuga Years

24. When it is desired to find out the Kaliyuga year corresponding to a given Śaka year, we should, ordinarily, add to the Śaka year 3179 if the given year is expired or 3178 if the given year is current. This is the general rule which gives us correct results in the great majority of cases. But there are also to be found a good number of instances where the Kaliyuga year that corresponds to a given Śaka year has to be found by adding 3180 to it, and a number of other instances where it is to be found by adding 3177. And there exist a small number of instances where we have to add 3181 or 3176 to the Śaka year to get the corresponding Kaliyuga year. In other words, just as, in the instances given above, Nos. 36—70 in §§ 19—23, we found that we had, to get correct results, to take the preceding or following year or more rarely, the preceding year but one or the following year but one, we have in the case of the Kaliyuga years also obtained by adding 3179 or 3178 to the Śaka year, to take the preceding year or following year, or more rarely, the preceding year but one or the following year but one, in order to get correct results. In such instances, it is more convenient to say that the Kaliyuga year has been got at by adding 3176, 3177, 3180 or 3181 to the Śaka year. Thus on the whole, the Kaliyuga year corresponding to a given Śaka year can be found by adding one of the following numbers—3176, 3177, 3178, 3179, 3180 and 3181—to it. Or, in other words, the A.D. year (*i.e.*, the *solar* year beginning in that A.D. year) corresponding to a given Śaka year, though usually obtained by adding 77 or 78 to the Śaka year, is sometimes obtained by adding 76 or 79 to it and on some rare occasions, is obtained by adding 75 or 80 to it. In what follows, the Śaka years to which 76 should be added in

order to get the corresponding Ky. year are distinguished by a star and those to which 79 should be added in order to get the corresponding Ky. year are distinguished by a dagger.

I shall now give here a few examples illustrating the above usages.

For Ky. year=Śaka year+3181 :—

71.—*No. 404 of the Madras Epigraphist's Collection for 1913.* Attūr inscription of the time of Kṛishṇarāya of Vijayanagar :—

"Śaka 1449, Virōdhi, Siṁha-su-di. 11, Sunday, Pushya."

Virōdhin (by the southern luni-solar system)=Ky. 4630; we have therefore to add 3181 to the Śaka year to get that number.

The above date contains a mistake as in the month of Siṁha, the *nakshatra* Pushya occurs not in the first fortnight, but in the second. The date therefore quotes either the *nakshatra* or the *paksha* wrongly, probably the latter. Emending, therefore su-11 to ba-11, we find that the above date corresponds regularly to **Sunday 29th August, A.D. 1529.** On this day ba-11 in the month Siṁha ended at 35*gh.* 35*p.* after mean sunrise, and the *nakshatra* Pushya at 3*gh.* 33*p.* after mean sunrise; the Jovian year was Virōdhin.

72.—*Ep. Carn.* VI, Kd. 81; p. 50^{1}—4; 79^{3}—4. Belaṭikere inscription of the time of Ballāḷa II :—

1112 Naḷa-saṁvatsaradalli Śrāvaṇa-bahuḷa-ēkā 11 Bu 4 dalu.

Naḷa by the northern luni-solar system=Ky. 4293; so that we have here to add 3181 to the Śaka year to get the corresponding Ky. year. The equivalent is **Wednesday, 5th August, A.D. 1192.** On this day, ba-11 of Śrāvaṇa ended at 35*gh.* 55*p.* after mean sunrise; and the Jovian year (by the northern luni-solar system) was Naḷa.

For Ky. year=Śaka year+3176 :—

73.—*No. 354 of the Madras Epigraphist's Collection for*

1912; Devikapuram inscription of the time of Immaḍirāya-mahārāya:—

"Śaka 1429, Raktākshi, Mīna-ba-di. 10, Friday, Uttiram."

Raktākshi (by the southern luni-solar system)=Ky. 4605; we have therefore to add 3176 to the Śaka year to get the corresponding Ky. year.

By 'Uttiram,' we have to understand Uttarāshāḍhā and not Uttarā-phalgunī, as the latter cannot occur in conjunction with Mīna-ba 10. The equivalent of the above date is therefore **Friday, 28th February, A.D. 1505**. On this day, ba-10 of Mīna ended at 35*gh.* 55*p.* after mean sunrise and the *nakshatra* Uttarāshāḍhā began at 13*gh.* 48*p.* after mean sunrise. The Jovian year was Raktākshi.

74.—*No. 14 of the Madras Epigraphist's Collection for 1913*; an inscription at Perambalūr:—

"Śaka 1432, Prabhava, Makara-amāvāsyā, Pūrāḍam, and solar eclipse."

Prabhava (by the southern luni-solar system)=Ky. 4608; here, too, we have to add 3176 to the Śaka year to get the corresponding Ky. year.

The equivalent is **Sunday, 2nd January, A.D. 1508**. On this day, Makara-amāvāsyā ended at 36*gh.* 41*p.* after mean sunrise, and the *nakshatra* Pūrvāshāḍhā at 15*gh.* 15*p.* after mean sunrise while there occurred on this day a solar eclipse invisible in India. The Jovian year was Prabhava.

For Śaka year+3177=Ky. year:—

75.—*Ep. Carn.* VII, Ci. 73; p. 342[1]—last line but one; 469[3]—36. Kallukere inscription of the time of Ballāḷa II:—

Saka-varusada 1104 ya Sārvvari-saṁvatsarada Chaitra-su- 1 Sōmavāra sūryya-grahaṇad=andu.

Śārvarin by the southern luni-solar system=Ky. 4281; here we have to add 3177 to the given figure 1104 to get at that sum. The date itself is irregular for the southern luni-solar Śārvarin but in the previous year but one, there occurred a solar eclipse visible in India on **28th March, 1178**;

on this day, Chaitra-su 1 began at 12*gh.* 14*p.* after mean sunrise. The weekday however was *Tuesday* and not *Monday*. Śārvarin by the northern luni-solar system=Ś. 1098; in this year, there took place a solar eclipse visible in India on **11th April, A.D. 1176**, on which day su-1 of solar Chaitra or Mēsha began at 10*gh.* 57*p.* after mean sunrise. The weekday was not Monday but **Sunday**. One of these two days seems to be the day intended by the inscription.

76.—*Ep. Carn.* VI, Kd. 59; p. 39[1]—1; 58[3]—1. An inscription at Brahmasamudra:—

Śaka-varsha 1154 neya Vikṛiti-saṁvatsarada Śrāvaṇa-śuddha 7 Bṛihavārad=andu.

Vikṛiti by the southern luni-solar system=Ky. 4231; hence we have to add 3177 to the Śaka year 1154 to get that sum. The equivalent is **Thursday, 18th June, A.D. 1230**, on which day Śrāvaṇa-su 7 ended at 19*gh.* 45*p.* after mean sunrise.

77.—*Ep. Carn.* VI, Mg. 65; p. 160[1]—4; 278[3]—6. Kaḷasa inscription of the time of Ballu-dēva (Ballāḷa II?):—

Saka-varisa 1132 neya Vibhava-saṁvatsara Āśvīja-māsada bahuḷa 5 neya Bṛihavārad=andu.

Vibhava (by the southern luni-solar system)=Ky. 4309; so that we have here to add 3177 to the Śaka year to get the corresponding Ky. year.

The date does not work out correctly for the year cited; in the following year however Āśvina-ba-5 began at 9*gh.* 51*p.* after mean sunrise on **Saturday, 19th September, A.D. 1209**. This perhaps is the day intended by the inscription.

78.—*Ep. Carn.* VI, Sg. 28; p. 203[1]—7; 393[3]—7. A Hālagūru inscription:—

svasti śrī jayābhyudaya Śaka-varsha 1324 neya Vikrama-saṁvatsarada Phālguṇa-bahuḷa amāvāsye Sōma-vāra sūrya-grahaṇa-puṇya-kāladali.

Vikrama by the southern luni-solar system=Ky. 4501; here too, we have to add 3177 to the Śaka year to get the corresponding Ky. year.

In this southern luni-solar Vikrama the *amāvāsyā* at the end of Phālguna ended on **15th March, A.D. 1401** on which day a solar eclipse took place which was visible in India. The weekday was not Monday but Tuesday. Vikrama, by the mean-sign system, began on 25th August, A.D. 1393. In this Vikrama, the *amāvāsyā* at the beginning of Phālguna ended on **1st February, A.D. 1394**, on which day there occurred a solar eclipse visible in India. The weekday was Sunday and not Monday. One of these two days seems to be intended by the inscription.

For Śaka year + 3180 = Ky. year :—

79.—*Ep. Carn.* VII, Sh. 1; p. 3^{1}—4; 3^{3}—82. Shimoga plates of Kṛishṇa-rāya of Vijayanagar :—

śakābdē Śālivāhasya sahasrēṇa chatuś-śataih।
chatus-triṁśat-samā-yuktē Śrīmukhē vatsarē kramāt।
Pushya-māsē tathā darśē mahōdaya-samanvitē।
puṇya-kālē śubhē yōgē.....

Śrīmukha = Ky. 4614, so that here we have to add 3180 to Ś. 1434 to get that sum. The date is correct for Ky. 4614 and the equivalent is **Wednesday, 25th January, A.D. 1514**, on which day occurred the auspicious time known as the *mahōdaya-puṇya-kāla*.[1]

80.—*Ep. Carn.* VI, Kd. 99; p. 58^{1}—10; 93^{3}—35. Santekere inscription of the time of the Hoysala Vishṇuvardhana :—

Saka-varisa 1064 neya Rudhirōdgāri-saṁvatsarada Vaiśākha-suddha-dasami Bṛihavārad=andu.

Rudhirōdgarin by the southern luni-solar system = Ky. 4244, so that we have to add 3180 to the Śaka year 1064 to get that sum.

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[1] In this instance, this consisted of the combination on one day of the *nakshatra* Śravaṇa, the *yōga* Vyatīpāta and the *amāvāsyā* at the end of Pushya.

The date is irregular for this year; but in the following year, Vaiśākha-su 10 ended about 20 *palas* after mean sunrise of **Saturday**[1], **15th August, A.D. 1144.**

81.—*Ep. Carn.* VI, Cm. 104; p. 122[1]—1; 201[3]—31. Muttinapura inscription of the time of Ballāḷa II:—

Saka-varsha 1123 neya Dundubhi-saṁvatsarada Vaiśākha-śuddha-pañchamī Bṛihavārad=andu.

Dundubhi by the southern luni-solar system=Ky. 4203 so that we have to add 3180 to the Śaka year 1123 to get that number.

In this Dundubhi, Vaiśākha was an *adhika-māsa;* su-5 in the adhika-Vaiśākha ended about 39*p.* after mean sunrise on **Saturday, 30th March, A.D. 1202**; and su-5 in nija-Vaiśākha commenced at 27*gh.* 59*p.* after mean sunrise on **Saturday, 27th April, A.D. 1202.** One of these two days—preferably the latter—is the equivalent of the given date.

82.—*KLINI*, No. 367. Kēndupāṭnā plates of the Gaṅga Narasiṁhadēva II:—

saptadaśōttara-dvādaśaśata-Śakavatsarē Siṁha-śukla-shashṭhyāṁ Sōmavārē.

This date, as is noted by Kielhorn, is irregular for Ś. 1217 or Ky. 4396, but regular for Ky. 4397. Evidently, we have to add 3180 to the Śaka year 1217 to get at the corresponding Ky. year. The equivalent as is given by Kielhorn is **Monday, 6th August, A.D. 1296.**

83.—*KLINI*, No. 370. Purī plates of the Gaṅga Narasiṁhadēva IV:—

Śaka-nṛipatēr=atītēshu shōḍash-ādhikēshu trayōdaśaśata-saṁvatsarēshu . . . . Vichhā-śukla ēkādaśyāṁ Maṁgaḷa-vārē.

This date, it is noted by Kielhorn, is irregular for Ky. 4495, but regular for Ky. 4496. Here, too, therefore, we

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[1] For Bṛihavāra=Saturday see below § 26.

have to add 3180 to the Śaka year to get the corresponding Ky. year. The equivalent as given by Kielhorn is **Tuesday, 23rd November, A.D. 1397.**

For other examples see *KLISI*, Nos. 85, 150, 199, 243, 337, 468, 502, 503, 505, 511, 531, 594 and 779.

Ky. Years and Years of other eras

25. What has been said above of the years of the Śaka era holds good of the years of other eras and of other regnal years. The Ky. year corresponding to any year of the Chālukya Vikrama era, for example, is got at, according to Kielhorn, by adding 4177 for an expired year and 4176 for a current year. To these numbers, we have to add the numbers corresponding to the year previous to 4176, and following 4177, so that in all, we may add any one of the following numbers 4175, 4176, 4177, 4178* to the Chālukya Vikrama year in order to get at the corresponding Ky. year. A similar process must be performed in the case of the years of other eras, and of other regnal years also. It is immaterial in all these cases whether the Jovian year corresponding is cited in the date or not. I give here a few examples of this usage :—

84.—*Ep. Carn.* VII, Sk. 95; p. 115^{1}—29; 178^{3}—23. Beḷagāme inscription of the time of Siṁhaṇa :—

137 neya Yuva-saṁvatsarada Bhādrapadad=amāvāsye Bṛihaspativārad=andu.

The era though not mentioned, is no doubt the Chālukya Vikrama era. Chā. Vi. 137+4175=Ky. 4312 which was Yuvan by the northern luni-solar system.

In this year[1], Bhādrapada-amāvāsyā ended at 46*gh.* 35*p.* after mean sunrise on **Thursday, 8th September, A.D. 1211.**

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* And 4174 and 4179 also? ; compare § 24 above.

[1] The original Kanarese text on p. 178^{3} reads however '1137 neya Yuva-saṁvatsarada.....'; and curiously enough Ś. 1137 *does* correspond to Yuvan by the southern luni-solar system. In this year, too, Bhādrapada-amāvāsyā ended at 49*gh.* 22*p.* after mean sunrise on Thursday, 24th September, A.D. 1215.

85.—*Ep. Carn.* VIII, Sb. 86; p. 24[1]—3; 35[3]—3. Kuṁsi inscription of the W. Chālukya Jagadēkamalla II:—

Vikrama-varshad yeppatta-mūṛanē 73 ya Pramādōdha-saṁvatsarada Chaitra-bahuḷa yēkā-11-dasi Sukravārad=andu.

Here we have to add 4178 or 4175 to 73 in order to get the corresponding Ky. year.

73+4178=Ky. 4251 which was Pramōda by the southern luni-solar system. In this year ba-11 of the Chaitra at the end began at 26*gh.* 45*p.* after mean sunrise on **Friday, 13th April, A.D. 1151.**

73+4175=Ky. 4248 which was Pramōda by the northern luni-solar system. In this year ba-11 of the Chaitra at the end ended at 34*gh.* 8*p.* after mean sunrise on **Friday, 16th April, A.D. 1148.** One of the above two days—perhaps the latter—is the day intended by the inscription.

86.—*Ep. Carn.* VIII, Sb. 198; p. 68[1]—17; 86[3]—14. Tavanandi inscription of the Dēvagiri-Yādava Rāmachandra:—

śri-vīra-Rāmachandra - rāya - rājyōdayada 23 neya Nandana-saṁvatsarada Jyēshṭha-ba 11 Guruvārad=andu.

Rāmachandra's reign began in Ś. 1193 or Ky. 4372. In order to get the Ky. year corresponding to the 23rd year of his reign, we have here to add 4370 to 23. Ky. 4393=Nandana by the southern luni-solar system. In this year, Jyēshṭha-ba-11 ended at 45*gh.* 7*p.* after mean sunrise on **Thursday, 12th June A.D. 1292.**

87.—*Ep. Carn.* VIII, Sb. 275; p. 95[1]—18; 124[3]—51. Dēvasthānahakkalu inscription of the time of the Dēvagiri-Yādava Rāmachandra:—

śrī-Rāma-dēva-rāya-vijaya-rājyōdayada 12 neraḍaneya Vikrama-saṁvatsarada Kārttika-ba 10 Ādivāradalu.

Here we have to add 4369 to 12 in order to get at the Ky. year corresponding to the 12th regnal year of Rāmachandra. Ky. 4381=Vikrama by the southern luni-solar

system. In this year, Kārttika-ba 10 began at 34*gh.* 21*p.* after mean sunrise on **Sunday, 17th November, A.D 1280.**

88.—*Ep. Carn.* VIII, Sb. 247; p. 77[1]—2; 101[3]—1. Kuppaṭūru inscription of the time of the Dēvagiri-Yādava Rāmachandra:—

Śaka-varushada 1210 neya.....śrī-vīra-Rāma-dēva-vijaya-rājyōdayada 19 neya Sarvvadhāri-saṁvachchharada Mārggaśira-śu 1 Śu ||.

Here, too, we have to add 4370[1] to 19 in order to get the Ky. year corresponding to the 19th regnal year of Rāmachandra. Ky. 4389 or Ś. 1210=Sarvadhārin by the southern luni-solar system. In this year, Mārgaśira-su 1 ended at 14*gh.* 2*p.* after mean sunrise on **Friday, 26th November A.D. 1288.**

89.—*Ep. Carn.* VIII, Sb. 507; p. 164[1]—2; 226[3]—1. Chiṭṭūru inscription of the time of the Dēvagiri-Yādava Siṅghaṇa:—

Siṁhaḷa-dēva-varshada 5 neya Dhātu-saṁvatsarada Vaiśākha-śuddha 8 Bṛihaspativārad=andu.

The reign of Siṅghaṇa began in Ś. 1132 or Ky. 4311. Here, we have to add 4312 to 5 in order to get the Ky. year corresponding to the 5th regnal year of Siṅghaṇa. Ky. 4317=Dhātu (Dhātṛi) by the southern luni-solar system. For this year the date is irregular; but in the previous year, Vaiśākha-su 8 ended at 4*gh.* 33*p.* after mean sunrise on **Thursday, 9th April, A.D. 1215.** This seems to be the day intended by the inscription.

90.—*Ep. Carn.* VIII, Sb. 250; p. 79[1]—2; 103[3]—3. Kuppaṭūru inscription of the time of the Dēvagiri-Yādava Siṅghaṇa:—

Siṁhaṇa-dēva-varushada 26 Hēmaḷambi-saṁvatsarada Śrāvaṇa-bahuḷa 11 Śukravārad=andu.

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[1] Or, is it possible that Rāmachandra's reign began in Ś. 1191 and not in Ś. 1193?

Here too, we have to add 4312 to 26 in order to get the Ky. year corresponding to the 26th year of Siṁhaṇa's reign.

Ky. 4338=Hēmalambin; for this year the date is irregular; but in the year following, Śrāvaṇa-ba 11 ended at 48*gh.* 47*p.* after mean sunrise on **Friday, 6th August, A.D. 1238.**

91.—*Ep. Carn.* VIII, Sb. 525; p. 167^{1}—1; 232^{3}—1. Pura inscription of the time of the W. Chālukya Tailapa III:—

śrīmach-Chāḷukya-Vikrama Nūrmmaḍi-Tailapa-dēva-varshada 4 neya Āṅgirasa-saṁvatsarada Mārggasira-ba 14 Ā.

Tailapa III's reign began in Ś. 1072 or Ky. 4251. Here, however, we have to add 4249 to 4 in order to get the Ky. year that corresponded to Tailapa III's 4th regnal year.

Ky. 4253=Āṅgirasa by the southern luni-solar system. For this year, the date is irregular; but in the following year but one, Mārgaśira-ba 14 ended at 53*gh.* 28*p.* after mean sunrise on **Sunday, 5th December, A.D. 1152.**

Brihavara and Vaddavara

26. Among the names of weekdays that occur in inscriptions, two names, *Bṛihavāra* and *Vaḍḍavāra* seem to be peculiar to the Kanarese inscriptions only. Of these, no difficulty seems to have been felt at any time as regards the meaning of the term *Bṛihavāra*. This word resembles the word *Bṛihaspativāra* so closely that it was felt that the two words expressed the same day, namely, Thursday.

Regarding *Vaḍḍavāra* on the other hand, diverse opinions were expressed as to its meaning. Mr. Rice (*Ind. Ant.* VIII, p. 90) thought that it meant Sunday; Dr. Bhau Daji, (*J.B.B.R.A.S.* X, p. 46) that it meant Wednesday or Thursday; Kielhorn (*Ind. Ant.* XXII, p. 111), that it meant Saturday or Sunday, and Dr. Fleet (*ibid.* p. 251) that it meant Saturday. This last opinion was subsequently endorsed by Mr. Rice in the *Ind. Ant.* XXIII, p. 168,

and since that time, it seems to have been taken as settled that *Vaḍḍavāra* meant Saturday.

We can therefore take it for granted that *Bṛihavāra* means Thursday, and that *Vaḍḍavāra* means Saturday. But these two words are, as a matter of fact, doublets, *Vaḍḍavāra* being nothing else than the *tadbhava* or prakritised form of *Bṛihavāra*; for an analogous instance, compare *Bṛihat-kathā* and *Vaḍḍakathā* (J.R.A.S. 1913, p. 389).

On *a priori* grounds therefore it can be inferred that these two words mean the same; that is to say, that Bṛihavāra and Vaḍḍavāra both mean Thursday and Saturday. This inference is found to be justified by the usage of the inscriptions of which I here give a few examples:—

For Vaḍḍavāra=Thursday:

92.—*Ep. Carn.* VIII, Sa. 150; p. 229[1]—5; 328[3]—8. Hosagunda *vīrakal* of the time of Bīradēva, governor of the Sāntalige 'thousand' province:—

Sakha-varsha 1176 neya Ānanda-saṁvatsara 47 neya Māgha-mā-suddha 13 Vaḍḍavārad=andu.

Ānanda is the 47th year in the cycle of Jovian years, counting from Prabhava=0. By the southern luni-solar system, Ānanda=Ś. 1176. In this year Māgha-su 13 commenced at 13*gh.* 48*p.* after mean sunrise on **Thursday, 21st January, A.D. 1255** and ended at 12*gh.* 11*p.* after mean sunrise of the following Friday.

93.—*Ep. Carn.* VII, Sh. 51; p. 34[1]—10; 52[3]—14. Siddāpura inscription of the time of the W. Chālukya Tribhuvanamalla:—

śrīmatu-Chāḷukya-Vikrama-kālada mūvatteneya Sarvvajitu-saṁvatsarada Phālguṇa-suddha-paurṇami Vaḍḍavārad=andu.

Chā. Vi. 30=Ś. 1028; and Ś. 1028†=Sarvajit by the southern luni-solar system [see § 24 above]. In this year, Phālguna-su 15 commenced at 40*gh.* 31*p.* after mean sunrise on **Thursday, 27th February, A.D. 1108**, and ended on the following Friday a little earlier.

94.—*Ep. Carn.* IV, Ng. 28; p. 197[1]—27; 335[3]—41. Lālanakere inscription of the time of the Hoysala Vishṇuvardhana:—

Saka-varisha 1059 neya Piṅgaḷa-saṁvatsarada Phālguṇa-suddha-trayōdasi Vaḍḍavārad=andu.

Ś. 1059=Piṅgaḷa by the southern luni-solar system. In this year, Phālguna-su 13 ended at 37*gh.* 35*p.* after mean sunrise on **Thursday, 24th February, A.D. 1138.**

95.—*Ep. Carn.* V, Hn. 29; p. 17[1]—1; 24[3]—1. Hañchūru *vīrakal* of the time of Ballāḷa II:—

Hosaḷa-śrī-Vīra-Ballāḷa-Dēva prithuvī-rājyaṁ geyvali Jaya-saṁvacharada Kārttika-suddha-pañchami-Voḍḍavārad=andu.

In the reign of Ballāḷa II, Jaya by the southern luni-solar system=Ś. 1096. In this year, Kārttika-su 5 ended at about 17*p.* or 7*m.* after true local sunrise (for Mysore) on **Thursday, 3rd October, A.D. 1174.**

96.—*Ep. Carn.* V, Ak. 48; p. 296[1]—6; 399[3]—55. Kaṇikaṭṭe inscription of the time of Vīra-Ballāḷa (?):—

Saka-varusha 1051 neya Saumya-saṁvatsarada Chaitra-suddha-pañchami Vaḍḍavāra uttarayāṇa-saṅkramaṇa-vyatīpātad=andu.

Ś. 1051=Saumya by the southern luni-solar system. In this year, su-5 of solar Chaitra (Mēsha or Chittirai) ended at 35*gh.* 25*p.* after mean sunrise on **Thursday, 25th April, A.D. 1129**; on this day, too, must have been reckoned to fall the *saṅkrānti* which had occurred at 3*gh.* 16*p.* after mean sunrise (S. S.) or at 14 *palas* before mean sunrise (A. S.) of the preceding day. See § 29 below.

97.—*Ep. Carn.* V, Ak. 104, p. 355[1].—4th line from bottom; 474[3]—26. Beḷagumba inscription of the time of Ballāḷa II:—

Shaka-varusha 1117 ḷaneya Rākshasa-saṁvatsarada Phālguṇa-sudha-paurṇṇami Vaḍavārad=andu.

Ś. 1117=Rākshasa; in this year, Phālguna-su 15 ended at 42*gh.* 9*p.* after mean sunrise on **Thursday, 15th February, A.D. 1196.**

98.—*Ep. Carn.* V, Ak. 69; p. 317[1]—7; 425[3]—57. Hirikallubeṭṭa inscription of the time of Ballāḷa II :—

Saka-varsha 1096 neya Vijaya-saṁvatsarada Phālguṇa-suddha-trayōdaśi Vaḍḍavāra uttarāyaṇa-saṅkramana-byatīpātad=andu.

Ś. 1096 current=Vijaya by the southern luni-solar system; for this year the date is irregular. It is also irregular for the northern luni-solar Vijaya=Ś. 1091, and for the mean-sign Vijaya which was current from 13th February, A. D. 1169 to 9th February, A. D. 1170. In the year previous to this mean-sign Vijaya—*i. e.*, in the mean-sign Nandana, Phālguna-su 13 ended at 56*gh.* 25*p.* after mean sunrise on **Thursday, 22nd February, A. D. 1168**; on this day occurred the *saṁkrānti* at 51*gh.* 26*p.* (S. S.) or 49*gh.* 16*p.* (A. S.) after mean sunrise.

For Bṛihavāra=Saturday :

99.—*Ep. Carn.* IX, DB. 31; p. 83[1]—14; 146[3]—29. Doḍ-Baḷḷāpūr inscription of the time of the Hoysala Narasiṁha III :—

Śaka-varusha 1189 neya Prabhava-saṁvatsarada Chaitra-śuddha 10 Bṛi.

Ś. 1189=Prabhava; in this year, Chaitra-su 10 commenced at 34*gh.* 27*p.* after mean sunrise on **Saturday, 24th March, A.D. 1268** and ended a little earlier on the next day.

100.—*Ep. Carn.* IX, Kn. 82; p. 162[1]—2; 285[3]—3. Niṭṭūru inscription of the time of Narasiṁha III :—

Saka-varusha 1206 neya Svabhānu-saṁvatsarada Chayitra-su 1 Bra-vāradalu.

Ś. 1206 current=Subhānu; in this year, Chaitra-su 1 commenced on **Saturday, 18th March, A. D. 1284** very late in the day at 49*gh.* 8*p.* after mean sunrise.

101.—*Ep. Carn.* IX, Cp. 51; p. 177[1]—6; 315[3]—6. Māḷagāḷu inscription of the time of Ballāḷa :—

Saka-varusha 1126 Raktākshi-saṁvatsarada Kārttika-ba 1 Bra.

Ś. 1126=Raktākshi; for this year the date is irregular. In the following year, Kārttika-ba 1 began at 34*gh.* 15*p.* after mean sunrise on **Saturday, 29th October, A.D. 1205.**

102.—*Ep. Carn.* V, Cn. 189; p. 471[1]—2; 623[3]—3. Gollarahosahaḷḷi inscription of the time of Narasiṁha-Hoysala-dēva :—

Saka-varsha 1009 Prabhava-saṁvachharada Māgha-suda-pa 5 mi Bṛihavārada.

Ś. 1009=Prabhava; in this year, Māgha-su 5 ended at 51*gh.* 35*p.* after mean sunrise on **Saturday, 1st January, A.D. 1088.**

103.—*Ep. Carn.* VII, Hl. 48; p. 297[1]—9; 393[3]—8. Beḷagaṭṭe *vīrakal* of the time of the Yādava Siṅghaṇa :—

Saka-varshada 1138 neya Dhātu-saṁvatsarada Vaiśākha-su 5 Bṛihavāradal.

Ś. 1138=Dhātṛi (Dhātu); in this year, Vaiśākha-su 5 ended at 55*gh.* 20*p.* after mean sunrise on **Saturday, 23rd April, A.D. 1216.**

104.—*Ep. Carn.* VII, Hl. 55; p. 304[1]—last line but one; 399[3]—17. Kuḷahaḷḷi *vīrakal* of the time of Bīra-dēvarasa :—

Śaka-varshada 1169 Plavaṅga-saṁvatsa[ra]da Vaiśākha-su 10 Bṛi-dand[u].

Ś. 1169=Plavaṅga; for this year, the date is unsatisfactory. In the following year, Vaiśākha-su 10 ended at 51*gh.* 39*p.* on **Saturday, 4th April, A.D. 1248.**

105.—*Ep. Carn.* V, Cn. 203; p. 482[1]—12; 639[3]—59. Kembāḷu inscription of the time of the Hoysala Sōmēśvara :—

Saka-varshada 1158 neya Manmatha-saṁvatsarada Śrāvaṇad=amāvāsye Bṛi | sūryagrahaṇada dāna-mahōtsavadalu.

Ś. 1158 current=Manmatha. In this year there took place a solar eclipse visible in India on Śrāvaṇa-amāvāsyā, *i.e.*, 15th August, A.D. 1235. The weekday however was Wednesday and not Bṛihavāra. The date is therefore irregular for this year.

In the previous year too there occurred a solar eclipse visible in India on [nija-] Śrāvaṇa-amāvāsyā, *i.e.*, on **26th August, A.D. 1234**. The weekday in this instance was **Saturday**. This day, therefore, is the one intended by the inscription.

106.—*Ep. Carn.* XI, Dg. 12; p. 45^{1}—1; 67^{3}—28. Bētūru inscription of the time of the W. Chālukya Tribhuvanamalla :—

Chāḷukya-Vikrama-kālada 33 neya Sarvvadhāri-saṁvatsarada Pushya-śuddha-pañchamī Bṛihavārad=and=uttarāyaṇa-saṅkramaṇa-vyatīpāta-nimittam=āgi.

Chā. Vi. 33 current=Ś. 1030=Sarvadhārin by the southern luni-solar system. For this year, the date is irregular ; it is also irregular for the northern luni-solar Sarvadhārin=Ś. 1027. The mean-sign Sarvadhārin was current from the 3rd November, A. D. 1104 to 31st October, A. D. 1105. In this year, Pushya-su 5 ended at 10*gh.* 16*p.* after mean sunrise on **Saturday, 24th December, A. D. 1104** ; on this day occurred the Makara-saṅkrānti at 17*gh.* 14*p.* (S. S.) or 15*gh.* 33*p.* (A. S.) after mean sunrise.

Tropical Sankrantis

27. Although the *saṅkrāntis* cited in the inscriptions are, as a general rule, sidereal *saṅkrāntis*, there are still forthcoming not a few examples where the *saṅkrāntis* cited seem to be tropical ones. About the auspiciousness of these *saṅkrāntis*, see § 39 in Jacobi's paper on the 'Computation of Dates' in *Ep. Ind.*, Vol. I, p. 422. Here are a few examples :—

107.—*Ep. Carn.* VII, Sh. 102; p. 77^{1}—3 ; 111^{3}—31. Anavēri inscription of the time of Vīra-Ballāḷa II :—

Ba[l]lāḷa-dēva-varushada Bhāva-saṁvatsarada Puśya-Margaśira 13 Sōmavārav=uttarāyaṇa-saṅkramaṇa-byatīpāta-puṇya-dinaṁ.

Bhāva, in the reign of Ballāḷa II, corresponds to Ś. 1136 by the southern luni-solar system. In this year, Pushya-su 13 commenced at 42*gh.* 25*p.* after mean sunrise on **Monday, 15th December, A.D. 1214** ; on this day, too, took

place the *sāyana* Makara-saṅkrānti at about 14*gh.* 36*p.* after mean sunrise.

108.—*Ep. Carn.* VI, Kd. 66; p. 43[1]—19; 64[3]—64. Brahmasamudra inscription of the time of the Hoysala Narasiṁha I:—

Śaka-varsha sāsirada-tombhatta-nālkaneya Nandana-saṁvatsarada Pushya-suddha-ēkādaśiy=Ādivārad=uttarāyaṇa-saṅkramaṇad=andu.

Ś. 1094=Nandana by the southern luni-solar system. For this year, the date is irregular; in the following year, Pushya-su 11 ended at 57*gh.* 19*p.* after mean sunrise on **Sunday, 16th December, A. D. 1173.** The tropical Makara-saṅkrānti took place at about 15*gh.* 36*p.* after mean sunrise on Saturday, 15th December, and might have been perhaps reckoned to fall on the following Sunday. See § 30 below.

For another possible equivalent of this date, see No. 50 above.

109.—*KLINI,* No. 103— Raiwan (now Lucknow Museum) plate of Gōvindachandra of Kanauj; dated

saṁvat 1187 Mārgga-sudi paurṇṇimāsyāṁ tithau Sōmadinē . . . . saṁkrantau.

Kielhorn suggests Monday, 17th November, A.D. 1130 as the equivalent, but hesitatingly, because, according to him there was no *saṁkrānti* on that day. [See his footnote 2 on p. 16 of App. to *Ep. Ind.* Vol. V.] To me, there seems to be no occasion for hesitating; for, Samvat 1187=Ky. 4231 and in this year Mārgaśira-su 15 ended at 3*gh.* 31*p.* after mean sunrise on **Monday, 17th November, A. D. 1130.** The tropical Dhanus-saṅkrānti took place on the preceding day at about 25*gh.* 48*p.* after mean sunrise and must have been observed on that day; see § 30 below. There is thus no doubt that this is the correct equivalent of the given date.

110.—*Ep. Carn.* VI, Tk. 42; p. 222[1]—13; 432[3]—67. Amṛitāpura inscription of the time of Ballāḷa II:—

Saka-varsha 1128 neya Krōdhana-saṁvatsarada Pushya suddha-pāḍiva Sōmavārad=uttarāyaṇa-saṅkramaṇad=andu.

Ś. 1128 current=Krōdhana; in this year, Pushya-su 1 began at 13*gh.* 28*p.* after mean sunrise on **Monday, 12th December, A. D. 1205**; on this day, too, occurred the tropical Makara-saṅkrānti at about 49*gh.* 43*p.* after mean sunrise according to the Brahma Siddhānta.

111.—*Ep. Carn.* IV, Hg. 56; p. 123[1]—12; 205[3]—21. Kittūr inscription of the time of the Kādamba Kandavamma, ruler of Bayalnāḍ:—

Saka-kāḷam 1001 Siddhārti-saṁvatsarada Mārggasira-māsada amāvāsyeyuṁ śaṅgrāntiyuṁ sūryya-grahaṇad=andu.

Ś. 1001=Siddhārthin; in this year there was no solar eclipse in Mārgaśira*—neither on the *amāvāsyā* at the beginning nor on that at the end; the date is therefore irregular for that year. In the following year, there took place a solar eclipse visible in India on **Monday, 14th December, A. D. 1080,** on the *amāvāsyā* at the end of Mārgaśira. On this day also took place the tropical Makara-saṅkrānti, according to the Ārya Siddhānta, at 37*gh.* 12*p.* after mean sunrise.

Time of Sankranti

28. The *saṅkrānti* or the passing of the sun from one zodiacal sign to another may take place at any time of day or night. It is this *saṅkrānti* that marks the true beginning of the solar month. In order therefore to avoid the confusion that will necessarily result if these months are made to begin at all odd hours of the day, it has been the practice everywhere to make the beginning of the solar month coincide with the beginning of the day. Messrs. Sewell and Dikshit have described in § 28, p. 12 of their

* *i. e.*, in *lunar* Mārgaśira. On the *amāvāsyā* at the end of Pushya of the year Ś. 1001, *i. e.*, on **Thursday, 26th December, A. D. 1079** there took place a solar eclipse visible in India. The Makara-saṅkrānti, too, which occurred on 24th December at 49*gh.* 5*p.* (S.S.) or 47*gh.* 31*p.* (A. S.) after mean sunrise, could, following the Bengal usage (see § 29 below) be associated with that day, so that it could be described as the *amāvāsyā* of (solar) Mārgaśira or Dhanus. In this case, the equivalent would be 26th December, A.D. 1079. As the weekday is not given it is not possible to determine which of these two days is the one intended by the inscription.

book the different practices that are now in vogue in different parts of the country :—

A.—The practice or rule of Bengal whereby the solar month is made to commence with the next day to that on which the *saṅkrānti* takes place, and with the next day but one if the *saṅkrānti* takes place at 45 *ghaṭikās* or later after sunrise.

B.—The practice of Orissa whereby the solar month is made to commence with the day on which the *saṅkrānti* takes place; whether the *saṅkrānti* occurs late in the day or early in the day makes no difference.

C.—The practice of Southern India whereby the solar month is made to commence with the same day if the *saṅkrānti* happens before 30 *ghaṭikās* (or in Malabar, 3/5ths of the daytime has passed) after sunrise, and with the next day if the *saṅkrānti* happens later in the day.

29. These different practices whereby the beginning of the solar month was made to coincide with the beginning of the day on which the *saṅkrānti* occurred, of the next day and of the next day but one were prevalent in former times too though the principles which regulated the practice were in all probability a little different from those now followed. And what is more, they seem—like the different systems of naming the Jovian years—to have been all of them current in the same place. And as the *saṅkrānti* is the beginning of the solar month, which according to the systems referred to above was made to begin on the day on which it took place, on the next day and on the next day but one, we find the dates recorded in the inscriptions associating the *saṅkrānti* with the day on which it took place, with the next day and with the next day but one. See, for instance, Nos. 23, 36, 40, 53 and 68 where the *saṅkrānti* is associated on the day it occurred; Nos. 9, 11, 13, 34, etc., where it is associated with the next day, and Nos. 15, 37, 43, 48 and 53 where it is associated with the next day but one.

30. The same rule seems to have been followed in the case of tropical *saṅkrāntis* also, although it does not

appear that the solar months commenced anywhere with the tropical *saṅkrānti*. As examples I may refer to Nos. 23, 48 and 107 where the tropical *saṅkrānti* is associated with the day on which it occurs, to Nos. 21, 35 and 108 where it is associated with the next day, and to No. 248 where it is associated with the next day but one.

Lunar and Solar Months

31. In the table below, I give in parallel columns the names of the lunar months, of the solar months named according to the zodiacal sign in which the sun is stationed, and of the Tamil solar months which are in fact prākrit forms of the names of the lunar months.

Lunar Months	Solar Months—sign-names	Tamil Names of Solar Months
Chaitra ...	Mēsha ...	Chittirai
Vaiśākha ...	Vṛishabha ...	Vaikāśi
Jyēshṭha ...	Mithuna ...	Āni
Āshāḍha ...	Karkāṭaka ...	Āḍi
Śrāvaṇa ...	Siṁha ...	Āvaṇi
Bhādrapada ...	Kanyā ...	Puraṭṭāśi
Āśvayuja ...	Tulā ...	Aippaśi
Kārttika ...	Vṛiśchika ...	Kārttikai
Mārgaśira ...	Dhanus ...	Mārgaḷi
Pushya ...	Makara ...	Tai
Māgha ...	Kumbha ...	Māśi
Phālguna ...	Mīna ...	Paṅguni

In connection with these, it must be noted that the inscriptions make use of the above names indifferently to express solar *or* lunar months; that is to say, the names Chaitra, Vaiśākha, etc., are used not only to denote the

1st month, the 2nd month, etc., of the lunar year, but to express the 1st month (=Mēsha or Chittirai), the second month (=Vṛishabha or Vaikāśi), etc., of the solar year also. And in the same way, the names Mēsha, Vṛishabha, etc., and Chittirai, Vaikāśi, etc., are used not only to express solar months but also to express the lunar months Chaitra, Vaiśākha, etc., as well. Such is the usage of the inscriptions; and such I may add, is the practice current among people to-day. The antiquity of this practice is attested to by the circumstance noted above that the names of the Tamil months, which, it is well known, are solar months, are the same as those of the lunar months.

It is needless to point out that it is only on an examination that one can find out that the name of a lunar month, say, Pushya, is used to express the corresponding (*i.e.*, the 10th) *solar* month—Makara or Tai, or that the name of a solar month,[1] say, Makara, is used to express the corresponding (*i.e.*, the 10th) lunar month, namely, Pushya.

Instances of such usage are fairly numerous in the inscriptions; see, for example, Nos. 150, 151, 152, 153, etc., below.

I also give a few examples here:—

112.—*Ep. Carn.* IV, Gu. 26; p. 65[1]—11; p. 16 of Tamil text. Sigōḍi inscription of the time of the Hoysala Sōmēśvara:—

Śakaraiy-āṇḍu 1166 śenṛa..... kṛit-saṁvatsarattu antyattil Chittirai.

The exact date is not given; but the fact that the inscription refers to the Chittirai at the *end* of the year shows that this term refers to the Chaitra at the end of the solar year.

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[1] Not only the names of the months, but periphrases of such names seem in this way to be used to express lunar months; *e.g. Arkē Tulāsthē* in *KLISI*, No. 577 (See No. 148 below); *dinakṛiti Vṛishabha-sthē* in *KLINI*, No. 355.

113.—Chōḷa date No. 33 in *Ep. Ind.* VI, p. 21.—

Saka-nṛipakāl-ātīta-saṁvatsara-śataṁga 955 ya Śrīmukha-saṁvatsarada Mārggaśira-suddha pāḍivam Mūl-Ārkkad=aṁdu.

As Kielhorn himself has noted, the date is irregular for lunar Mārgaśira, but regular for the solar Mārgaśira or Dhanus (Mārgaḷi). The equivalent is **Sunday, 25th November, A.D. 1033.**

114.—Chōḷa date No. 39; *Ep. Ind.* VI, p. 278. An inscription at Chēbrōlu :—

svasti Śakha-varshaṁbulu 998 n=ēṁti Naḷa-saṁvatsara.....Māgha-māsamuna punnamayu Sukravāramuna Sōmagrahaṇa-nimittamuna.

Kielhorn himself has noticed that this date is irregular for the month of (lunar) Māgha, but regular for the month of solar Māgha (Kumbha or Māśi); in this solar month, Phālguna-su 15 ended, and there took place a lunar eclipse visible in India, on **Friday, 10th February, A.D. 1077.**

115.—Chōḷa date No. 89; *Ep. Ind.* VIII, p. 3 :—

'In the sixth year (of the reign) of king Parakēsarivarman *alias* the emperor of the three worlds, the glorious Rājarājadēva—on the day of Rōhiṇi, which corresponded to a Thursday and to the seventh *tithi* of the first fortnight of the month of Mīna.'

Kielhorn himself has noted that this date is irregular for the solar month of Mīna, and that it is regular for the solar month of Kumbha; the equivalent is **Thursday, 14th February, A.D. 1152.** As, in this year, the lunar Mīna or Phālguna began on 8th February, it is evident that the month quoted by the inscription is a *lunar* one and not a solar one.

116.—Chōḷa date No. 74; *Ep. Ind.* VII, p. 174 :—

'In the 21st year (of the reign) of the king Parakēsarivarman *alias* the emperor of the three worlds, the glorious Kulōttuṅga-Chōḷadēva.....on the day of Hasta, which corresponded to a Saturday and to the thirteenth *tithi* of the first fortnight of the month of Ṛishabha'.

Kielhorn has noted that the date is irregular for the month of Ṛishabha, but regular for the month of Mēsha, and that the equivalent is **Saturday, 10th April, A.D. 1199.** This day falls within the month of lunar Ṛishabha or Vaiśākha which began on 29th March. It is therefore clear that the inscription uses here the term Ṛishabha to express the second *lunar* month.

Current Tithis

32. Another point that requires to be noticed is the practice of quoting current *tithis*, *i.e.*, those that *begin* on the day, instead of expired *tithis* or those that *end* on the day, in connection with weekdays, etc. This usage is strikingly illustrated by the examples given below:—

117.—*Ep. Carn.* VIII, Tl. 2; p. 291[1]—2; 413[3]—2. Tīrthahaḷḷi inscription of the time of Pratāpa-Dēvarāya II of Vijayanagar:—

svasti śrī jayābhyudaya-Saka-varusha 1346 neya varttamāna Śubhakrutu-saṁvatsarada Chayitra-su 1 Ā lu .....sūrya-grahaṇa-puṇyakāladalli.

A.D. 1422—3 or Ky. 4523=Śubhakṛit by the southern luni-solar system. We have therefore to add 3177 to the Śaka year to get the corresponding Ky. year.

The date is irregular for the above Śubhakṛit, for the mean-sign Śubhakṛit and for the northern luni-solar Śubhakṛit also.

But for the following year but one to the northern luni-solar Śubhakṛit (see § 22 above) the date works out correctly; and the equivalent is **Sunday, 26th March, A.D. 1419.** Chaitra-su 1 began at 21*gh.* 0*p.* after mean sunrise on this day and an eclipse took place which was visible in India.

118.—*Ep. Carn.* XII, Tp. 104; p. 100[1]—14 from bottom; 174[3]—31. Beḷagere inscription of the Hoysala Vishṇuvardhana:—

śrīma [tu*] Chāḷukya-Vikrama-kālada 54 neya Sādhāraṇa-saṁvatsarada Kārttika-suddha-pāḍiva Vaḍḍavāra sūrya-grahaṇadallu.

Chā. Vi. 54=Sādhāraṇa by the southern luni-solar system. For this year, the date works out quite correctly and the equivalent is **Saturday, 4th October, A.D. 1130.** Kārttika-su 1 began at 12*gh.* 13*p.* after mean sunrise on this day; and there took place a solar eclipse visible in India on this day.

33. It will be observed that both the above dates cite su-1 as the *tithi* and not *amāvāsyā*, although solar eclipses take place, as is well known, on *amāvāsyās* only. It is obvious, therefore, that in these instances, the inscriptions have quoted the *tithi* that *began* on the day instead of that which ended on the day. See, also, *Ep. Carn.* VIII, Sb. 388 which associates a lunar eclipse with ba-1—that is, with the *tithi* which began on that day after *pūrṇimā* had ended.

This practice of quoting beginning *tithis* seems to have been fairly well-spread; see, for instance, No. 212 below which associates with the weekday a *tithi* which began on that day at 58*gh.* 15*p.* after mean sunrise. See also Nos. 7, 10, 12, 19, 35, 41, etc., above, and Chōḷa dates Nos. 105, 108, 114, 115, etc.

34. As in the case of *tithis*, so in the case of *nakshatras*, and *yōgas* and *karaṇas* also, there are many inscriptions which cite those that begin on the day instead of those that end on the day; see Nos. 54, 18 and 7 which cite respectively the *nakshatra*, *yōga* and *karaṇa* that began on those days; as regards beginning *nakshatras*, see also Chōḷa dates Nos. 102, 105, 106, 112, 121, 139, etc.

Ways of Interpreting a Date

35. It will be obvious from what has been set forth above that there are many ways in which a given date can be interpreted; that is, many ways of determining the day, month and year that is intended to be set forth by an inscription.

36. Let us take, as an example, the date '*Śaka 1053, Virōdhikṛit, Āśvayuja-śuddha-dvitīyā*' for consideration.

Taking the *tithi* first, we have already seen above that the *tithi* quoted may be either the expired *tithi* or the *tithi* that commences on the day ; so that, the date as it stands can be used to describe two days, the day on which the *śuddha-dvitīyā* begins and the day on which it ends.† In the case of the *amāvāsyā-tithi* there is a third mode of interpretation, due to the fact that this *tithi* is the connecting point between two months and can therefore be looked upon as belonging to both—as marking the end of one month, and as marking the true beginning of another month. 'Āśvayuja-amāvāsyā' therefore is also used to denote the day on which the Bhādrapada-amāvāsyā ends, and the month of Āśvayuja really begins.

37. Coming now to the month, we have seen that the month can be taken as a lunar one, and also as a solar one ; so that there are two ways of interpreting the name of the month. And as the solar and lunar months coincide only occasionally, it is obvious that the days in lunar Āśvayuja on which the *tithi śuddha-dvitīyā* begins and ends are, in many cases, different from the days in solar Āśvayuja on which the *śuddha-dvitīyā* begins and ends.

There are thus 2×2 or 4 days in each year which can be described as *Āśvayuja-śuddha-dvitīyā*.

38. Let us now consider the year, which is described as 'Śaka 1053, Virōdhikṛit'. Śaka 1053 expired = Virōdhikṛit by the southern luni-solar system, while Virōdhikṛit by the northern luni-solar system = Śaka 1050, and Virōdhikṛit by the mean-sign system corresponds to the greater part, including the month Āśvayuja, of Śaka 1049. We have seen above that in many inscriptions we have to understand the northern luni-solar or mean-sign Jovian year despite the circumstance that the inscription apparently quotes the southern luni-solar Jovian year ; and we have also seen that in many cases we have to work for the year

† It is only very rarely—about once in 63 days—that a *tithi* begins and ends on the same day.

immediately following or immediately preceding* the Jovian year so cited in order to get correct results. Altogether therefore, it is possible from the description of the year quoted, to understand that any one of the following years —namely, Śaka 1048, 1049, 1050, 1051, 1052, 1053 and 1054—may be meant by the inscription, and accordingly to work for any one of the above years.

39. As we have just seen that in each year there are 4 days that answer to the description, we have on the whole 7×4 or 28 different days that answer the description. Any one of these 28 days might be intended by the date 'Śaka 1053, Virōdhikṛit, Āśvayuja-śuddha-dvitīyā' which may be quoted in an inscription. I subjoin here all the possible equivalents of this date :—

For Ś. 1048—Sun. 19th Sep.; Mon. 20th Sep.; Mon. 18th Oct.; and Tues. 19th Oct. in A.D. 1126.

For Ś. 1049—Fri. 9th Sep.; Sat. 10th Sep.; Sat. 8th Oct.; and Sun. 9th Oct. in A.D. 1127.

For Ś. 1050—Tues. 28th Aug.; Wed. 29th Aug.; Wed. 26th Sep.; Thurs. 27th Sep.; Thurs. 26th Oct.; and Fri. 27th Oct. in A.D. 1128.

For Ś. 1051—Mon. 16th Sep.; Tues. 17th Sep.; Wed. 16th Oct.; and Thurs. 17th Oct. in A.D. 1129.

For Ś. 1052—Fri. 5th Sep.; Sat. 6th Sep.; Sun. 5th Oct.; and Mon. 6th Oct. in A.D. 1130.

For Ś. 1053—Thurs. 24th Sep.; Fri. 25th Sep.; Sat. 24th Oct.; and Sun. 25th Oct. in A.D. 1131.

For Ś. 1054—Mon. 12th Sep.; Tues. 13th Sep.; Tues. 11th Oct.; and Wed. 12th Oct. in A.D. 1132.

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* As a matter of fact we have also seen above (§§ 22, 23) that in some instances the next year but one to the year cited, and the previous year but one to the year cited have to be taken to yield correct results. These instances however being rare, I have neglected this usage while calculating the possible number of equivalents in this and the following paragraphs. If these years, too, are included among the possible years, the number of possible equivalents will of course be more than 28.

Instead of 28 equivalents, we have actually 30, due to there having been an adhika-Āśvayuja in Śaka 1050.

40. This number—28—is the maximum number of equivalents that can ordinarily be postulated for a date. In many cases it happens that the *tithi* cited falls both in the lunar and in the corresponding solar month. If, in the above instance, the *tithi* cited had been *bahuḷa-chaturdaśī*, we would have got, instead of 30, only 16 possible equivalents. Again some of the different possible years might coincide and thus reduce the number of possible years from 7 to 3. If, in the above instance, the year cited had been 'Śaka 919, Hēmalamba', the possible years intended by the date would have been Ś. 919=Hēmalamba by the southern luni-solar system; Ś. 920 the following year; Ś. 918 the year preceding, Ś. 917=Hēmalamba by the northern luni-solar and mean-sign systems, and Ś. 916 the year preceding; —that is, 5 years in all. In this instance, the mean-sign year Hēmalamba has coincided with the northern luni-solar Hēmalamba; and the year following the northern luni-solar Hēmalamba has coincided with the year preceding the southern luni-solar Hēmalamba; the number of possible years has therefore been reduced from 7 to 5. In the same way, if in the above instance the year cited had been 'Śaka 746, Krōdhin', the possible years that would have been meant would be Ś. 746=Krōdhin by the northern luni-solar and mean-sign systems, and, if we suppose the southern luni-solar system to have been current at that time, then by this system also; Ś. 747 the year following and Ś. 745 the year preceding—or three years in all.

41. The above is an instance of a date where the Jovian year is quoted. But, as already stated above, § 3, there occur in the inscriptions many dates where the Jovian year is not cited and where the year is indicated by a numeral of the Śaka or some other era or of some regnal year. Let us take a date of this type—say, '*Śaka 1053, Āśvayuja-śuddha-dvitīyā.*' We have seen above that the description '*Āśvayuja-śuddha-dvitīyā*' applies to four different days in

each year. Regarding the years that can be described as 'Śaka 1053' we have seen above, § 24, that by this term can be meant Ky. 4230, 4231, 4232 and 4233* or 4 years* in all. The number of possible equivalents of the above date is therefore 4×4 or 16, being those that are given above for A.D. 1129, 1130, 1131 and 1132. The dates expressed in other eras (as *e.g.*, Chālukya Vikrama 18), or in the regnal years of Kings (as *e.g.*, 5th year of Vikrama-Chōḷa) have similarly from 8 to 16 equivalents.

42. Regarding the month and *tithi*, we have seen above that an *adhika* month adds to the number of possible equivalents. Similarly *adhika tithis* or *tri-sparśa tithis* add to the number of possible equivalents. *Kshaya* months and *kshaya tithis*, on the other hand, reduce the number of possible equivalents; so also do *kshaya* years of the northern luni-solar system.

43. Dates expressed according to the solar calendar also have more than one equivalent, the reason in this case being, that the solar year, and, consequently the solar months, begin on different days according to the different Siddhāntas. More than one of these Siddhāntas seem to have been current at the same place in the same time, so that, as regards the dates in inscriptions, we have, in order to get correct results, to calculate according to the Sūrya Siddhānta in some cases, according to the Ārya Siddhānta in others, and again, according to the Brahma Siddhānta in others.

44. The difference in the results yielded by these Siddhāntas will become clear by an example. Let us suppose that an inscription cites the date '*Śaka 1052, Sādhāraṇa, the day of the Makara-saṅkrānti.*' As in the instance given above, it is possible that any one of the

* Here too I have neglected the Ky. years 4229 and 4234, which are obtained by adding 3176 and 3181 respectively to the given Śaka year, an operation, occasions for which are rather rare in the dates given by inscriptions. If these two years are included, the number of possible equivalents will naturally be more than 16. Compare the footnote on p. 72 above.

following seven years—Śaka 1047, 1048, 1049, 1050, 1051, 1052 and 1053—may be meant. If we take the *saṅkrānti* as a sidereal *saṅkrānti*, and if we take into account the different practices referred to above of associating the *saṅkrānti* with the day on which it actually takes place, on the next day and on the next day but one, we will have the following equivalents of the above date :—

For Ś. 1047—23rd, 24th, 25th (and 26th also ?) of December, A.D. 1125.
„ Ś. 1048—23rd, 24th, 25th and 26th of December, A.D. 1126.
„ Ś. 1049—24th, 25th and 26th „ 1127.
„ Ś. 1050—23rd, 24th and 25th „ 1128.
„ Ś. 1051—23rd, 24th, 25th and 26th „ 1129.
„ Ś. 1052— „ „ „ „ „ 1130.
„ Ś. 1053—24th, 25th and 26th „ 1131.

45. If we take the *saṅkrānti* as a tropical *saṅkrānti* and if we likewise associate it with different days according to the practices mentioned above, the equivalents of the above date will be the following :—

For Ś. 1047—13th, 14th, 15th, 16th and 17th of December, A.D. 1125.
„ Ś. 1048—13th, 14th, 15th, 16th, 17th and 18th of December, A.D. 1126.
„ Ś. 1049—13th, 14th, 15th, 16th, 17th and 18th of December, A.D. 1127.
„ Ś. 1050—13th, 14th, 15th, 16th and 17th of December, A.D. 1128.
„ Ś. 1051— „ „ „ 1129.
„ Ś. 1052—13th, 14th, 15th, 16th, 17th and 18th of December, A.D. 1130.
„ Ś. 1053— „ „ „ 1131.

On the whole therefore there will be 64 different days each one of which can be understood as the equivalent of the date given above.

46. When however a date of the solar year other than the day of *saṅkrānti* is given, the number of possible equivalents will be much less, as in this case, the tropical *saṅkrāntis* are not taken into consideration.* We have to

* I have not met with any instance of solar months being made to begin with the tropical *saṅkrānti*.

take into consideration the time of the sidereal *saṅkrāntis* only as calculated according to the various Siddhāntas, fix the beginning of the solar month according to the rules referred to in § 28 above and count out the required day therefrom.

47. Let us consider an example of this kind of dates. An inscription of Kulōttuṅga-Chōḷa III who began to reign in A.D. 1178 gives the following date—

'The third year of his reign; the day of Aśvinī, which corresponded to a Wednesday which was the twenty-seventh solar day of the month of Siṁha.'

The years which may possibly be meant by the above date are A.D. 1178, 1179, 1180 and 1181. In these years, the 27th day of the month of Siṁha, would, according to the different systems of calculation, be the following :—

For A.D. 1178—21st, 22nd and 23rd of August.
For A.D. 1179—21st, 22nd and 23rd of August.
For A.D. 1180—20th, 21st, 22nd and 23rd of August.
For A.D. 1181—20th, 21st, 22nd and 23rd of August.

There are thus 14 days any one of which might be intended by the date '27th day of Siṁha in the 3rd year of the reign of Kulōttuṅga-Chōḷa' given above.

Verification of Dates

48. It goes without saying that the composers of the inscriptions which contain dates of the above type had a definite day in their minds and framed the wording of the date so as to indicate that particular day according to the usage which was familiar to them. Dates of the above type, therefore, though without verifiable details, indicated to them a particular day as definitely, as, for example, the date 19th December, A.D. 1916 does to us. It is because the thousands of inscriptions that have been published show to us that there were several different rules or practices that were followed in those times in the framing of the wording of dates that *we* are obliged to set down so many possible equivalents of one date. If we could know

what particular usage was followed by a composer—that is to say, whether he cites the Jovian year according to the northern luni-solar, southern luni-solar or mean-sign system; whether the *saṁkrānti* he cites is sidereal or tropical, whether his calculations are done with the help of the Sūrya, Ārya, or Brahma Siddhānta, etc.,—we, too, can, even in the absence of verifiable details, find out easily the particular day intended by him. In the absence of clues which may indicate to us the day that is intended, we have to compute all possible equivalents and content ourselves with the knowledge that the event recorded in the inscription took place at some time between the earliest and latest of such equivalents.

49. The clues that guide us to the day intended are of different kinds and forms. The mention of the reigning king, or of the regnal year of the king serves in some cases to indicate to us the exact year that should be taken for the date; so also does the mention of the Vikrama-saṁvat era, Hijra era or Christian era in connection with the Śaka era. The mention of the *ahargaṇa* or number of days elapsed since the beginning of the Kaliyuga, as well as dates giving the day, month and year according to the Hijra or Christian era indicates to us the exact day that is intended; the mention of verifiable details like the weekday, *nakshatra*, *yōga*, *saṁkrānti* or other day of the solar year, etc., also serves the same purpose.

50. I shall give here a few examples which will show clearly the nature of the help afforded by such clues. The inscription Ci. 43 in *Ep. Carn.* Vol. VII gives the date '*Śālivāhana-śaka-varusha 1575 daneyā Vijaya-saṁvatsarada Bhādrapada-sudha 5 Guruvāra Svātī-nakshatradalli*', while the following inscription, which is in Persian, and relates to the same event, gives the date as 1064 A.H. The date 'Śaka 1575, Bhādrapada-śuddha 5' has, as we know, many equivalents. Of such equivalents, three are associated with Thursday as weekday; and of these three, two are associated with the *nakshatra* Svātī, namely, Thursday, 18th August

A.D. 1653 (on this day su-5 of the lunar month of Bhādrapada ended at 5*gh.* 26*p.* after mean sunrise; the *nakshatra* Svātī ended at 35*gh.* 2*p.* after mean sunrise; the year was Vijaya by the southern luni-solar system), and Thursday, 7th September, A.D. 1643 (on this day began at 21*gh.* 25*p.* after mean sunrise the *tithi* su-5 of the solar month of Bhādrapada or Kanyā (or Puraṭṭāśi;) the *nakshatra* Svātī ended at 4*gh.* 11*p.* after mean sunrise; and the year was Vijaya which by the mean-sign system, began to be current from 24th July, A.D. 1643). In the absence of other evidence as to which of these two days was meant by the writer of the inscription, we would have been obliged to set down both these days as possible equivalents, and to be content with knowing that the event referred to—the building of a tank—took place at some time between 7th September, A.D. 1643 and 18th August, A.D. 1653. In this particular instance, however, the epigraph *Ep. Carn.* VII, Ci. 44 comes to our help with its mention of 1064 A.H. as the year in which the above event happened. The year 1064 A.H., which here is evidently to be taken as a current † year, began on 22nd November, A.D. 1652 and ended on 12th November, A.D. 1653. Its mention therefore makes it evident that the day intended by the inscription is **Thursday, 18th August, A.D. 1653** and not Thursday, 7th September, A.D. 1643; that is to say, we learn thereby that the Jovian year is here cited according to the southern luni-solar system, that the *tithi* and *nakshatra* quoted are expired ones, etc.

51. Similarly, a Telugu inscription at Malkapuram—No. 152 of the Madras Epigraphist's collection for 1913—gives the date 'Śaka 1452, Khara, Chaitra-su 2, Monday', while a Persian inscription—No. 153 of the same collection—which is inscribed on another face of the same pillar and

† The year 1064 A.H. expired was running from 12th November, A.D. 1653 to 2nd November, A.D. 1654; in this year there is no day that satisfies the given conditions.

relates to the same event, gives the date in the Muhammedan era. The only detail of this latter date that is given in the Madras Epigraphist's *Annual Report for 1913-14* is the year 931 A. H. Now, if we consider the date 'Śaka 1452, Khara, Chaitra-śuddha-dvitīyā', we will find (see § 39 above) that there are many possible equivalents of this date, and that, of such equivalents, four are associated with Monday. These four equivalents are—20th March, A. D. 1531 (southern luni-solar Jovian year, lunar Chaitra, expired *tithi*), 17th April, A. D. 1531 (southern luni-solar Jovian year, solar Chaitra or Mēsha, and beginning *tithi*), 7th March, A.D. 1524 (northern luni-solar Jovian year; lunar Chaitra, expired *tithi*) and 4th April, A. D. 1524 (the year following the northern luni-solar Khara; solar Chaitra or Mēsha and beginning *tithi*). Under ordinary circumstances we would have been obliged to give all the above four dates and to suggest that the event recorded took place on one of these days. The mention of 931 A. H. however in the Persian inscription indicates to us which of these days is the one intended by the inscription. The year 931 A. H., which again should be taken as 931 current,† began on 10th November, A. D. 1523, and ended on 29th October A. D. 1524. We can therefore reject the first two of the equivalents given above and can now say that the event recorded took place either on **7th March**, or on 4th April, in **A. D. 1524**. As further details of the Persian date are not at hand, there is no means of determining which of the above two dates is intended by the inscription; in all probability it is the first of the above two—7th March, A. D. 1524—that is intended. (See § 71 below).

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† I do not know if the distinction between current and expired years is elsewhere applicable to the years A. H. There is however no doubt that in this instance and in the instance given in § 50 above, the year A. H. cited is the current year and not the expired one. This is evident from a consideration of the Hindu dates which are given. If the Muhammedan dates had given details about the name of the weekday, month and day of the month, etc., we would have had direct evidence as to this point.

The mention of the year A. H., in this instance, lets us know that the Jovian year cited is the northern luni-solar one, that the month, in all probability, is lunar, and the *tithi* the ending *tithi*.

It is interesting to note in this connection that Mr. Svamikannu Pillai, who has computed and verified the verifiable dates given in the inscriptions collected by the Madras Epigraphist, has set down Monday, 20th March, A. D. 1531 as the equivalent of the given date. And as this equivalent does not tally with the details given in the Persian inscription, Mr. Krishna Sastri is naturally puzzled at this discrepancy between the two dates and calls attention to it in § 43, p. 105 of his Report for 1913-14.

52. The Merkara plate of the Coorg rājā Linga-Rājēndra-Voḍeyar—*Ep. Carn.* I, Coorg 17—contains the following date:—Vikrama-saṁvatsarada Chaitra-śuddha-dvādaśiyu Bhānuvāra . . . . . Kalidina 1797421 nē yētādruśa-su-divasadalli. The equivalent of this date is **Sunday, 26th March, A.D. 1820** (see also *KLISI*, No. 1011). The mention of the *ahargaṇa* in this instance lets us know that we have to take the southern luni-solar Vikrama, lunar Chaitra and ending *tithi*.

53. An inscription at Belgāme—*Ep. Carn.* VII, Sk. 91—contains the following date—'Śaka 1807 ke sariyāda Pārttiva-sam||rada Mārgaśira-bahuḷa 3 lu san 1885 ney isavi December tārīkhu 24 nē Guruvāra.' Here the European equivalent—**24th December, A. D. 1885**—is given by the date itself which thus indicates to us that the Jovian year is the southern luni-solar one, that the month quoted is lunar, and that the *tithi* is the ending *tithi*.

54. An inscription at Śravaṇa-Beḷgoḷa—*Ep. Carn.* II, Śravaṇa-Beḷgoḷa 141—gives the following date:

Vikramāṅka-samāsv=indu-gaja-sāmaja-hastibhiḥ|
satīshu gaṇanīyāsu gaṇitajñair=budhais=tadā||
Śālivāhana-varshēshu nētra-bāṇa-nag-ēndubhiḥ|
pramitēshu Vikṛityabdē Śrāvaṇē māsi maṅgalē||
kṛishna-pakshē cha pañchamyām tithau Chandrasya vāsarē|

The mention of the Vikrama-saṁvat year indicates to us that we have to work for the southern luni-solar Vikṛiti =Ś. 1752. The equivalent of the date is **Monday, 9th August, A.D. 1830** for lunar Śrāvaṇa and ending *tithi*, and **Monday, 6th September, A.D. 1830** for solar Śrāvaṇa and beginning *tithi*. There is nothing to determine which of these two days is the one intended by the inscription; but in all probability it is the former day.

55. The mention of the Vikrama-saṁvat year, it may be observed, is not so helpful for the determining of the intended year as the mention of the Hijra or A.D. year or of the *ahargaṇa*; for a date expressed in the Vikrama-saṁvat era is capable of many interpretations and is therefore as indefinite and uncertain as that expressed in the Śaka era. See, on this point, *Indian Antiquary*, XIX, p. 22; *Ep. Ind.* I, p. 406, and Svamikannu Pillai's *Indian Chronology*, p. 42.

56. Such citation of the *ahargaṇa* or of the Hijra, Vikrama-saṁvat or A.D. year in conjunction with the Śaka year or date is comparatively very rare. In the great majority of dates therefore we have to be guided by the details given in the date as to the weekday, *nakshatra*, etc., in order to get at the day intended by the inscription. This operation, however, can be successfully performed by us in such cases only where the inscription gives a sufficient number of details†; but, where, as is most frequently the case, the weekday is the only verifiable detail given and the *nakshatra*, *yōga*, etc., are not given, it will not ordinarily be possible, by a consideration of the date only, to determine the day intended by the inscription.

Uncertainty and Indefiniteness of verifiable dates

57. I have above (in §§ 36—39) discussed the date 'Śaka 1053, Virōdhikṛit, Āśvayuja-śuddha-dvitīyā' and

† Naturally one has to take account of every such detail that is cited. The assumption of an irregularity in, or the neglect of, any such detail will not lead to the correct day; see, on this point, Nos. 150, 160, 198, 251, etc., below.

shown that this date has 30 possible equivalents. These are given, with their weekdays, above ; and it can readily be seen that every one of the days of the week is associated not less than four times with the possible equivalents given there. When therefore, the name of a weekday is added to the above date the verifiable date so formed will have, whatever the name of the weekday so added might be, not less than four possible equivalents. We cannot therefore in such instances get at the day intended by the inscription unless there is extraneous evidence to guide us thereto.

58. The same remark applies to dates of the type 'Śaka 1052, Śādhāraṇa, the day of the Makara-saṅkrānti.' It has been shown above in § 44 that this date has 64 equivalents. In this instance, also, the verifiable date formed by adding the name of any weekday to the above date will have not less than 8 equivalents.

59. More rarely it happens that a date where the *nakshatra* is cited in addition to the weekday, will have more than one equivalent; see, for example, the date discussed above in § 50. No. 44 above where a *saṅkrānti* is cited in addition to the *tithi* and weekday has also more than one equivalent ; see § 20.

60. As a general rule, however, it may be stated that where a verifiable detail is cited in addition to the weekday, there will be but one equivalent of such dates ; that is to say, we can in such instances find out exactly the day intended by the inscription. And as regards dates where the only verifiable detail is the weekday, it may also, as a general rule, be stated, that such dates have more than one equivalent. Dates of this type, as above stated, form the majority of the verifiable dates of the Kanarese and Telugu countries ; and the history of these countries has been written mainly with the help of inscriptions containing such dates. The uncertainty and indefiniteness of such dates therefore is an important point which should always be borne in mind by the chronologist and historian.

This uncertainty will be best illustrated by an examination of the dates of the Chālukya Vikrama era given in Kielhorn's *List of Inscriptions of Southern India* (*Ep. Ind.*, Vol. VII, Appendix, p. 33ff).

61. The Chālukya Vikrama era was founded by the Western Chālukya Vikramāditya VI when he ascended the throne in, as is currently believed†, A.D. 1076. The reason for this belief is no doubt the statement of Dr. Fleet in his paper entitled '*The Chālukya-Vikrama Varsha*' in the *Indian Antiquary*, Vol. VIII that the coronation of Vikramāditya VI took place on Monday, the fifth day of the bright fortnight of Phālguna of Śaka 997, the Rākshasa *saṁvatsara*'. In this paper, Dr. Fleet discusses fully the nature and origin of the Chālukya Vikrama era and after a consideration of the dates given in an inscription at Waḍagēri and another at Araḷēśvar comes to the opinion set forth above that Vikramāditya's coronation took place on Monday, Phālguna-su 5 of Śaka 997, Rākshasa.

62. These two dates which have thus helped him to find out the day on which Vikramāditya was crowned read as follows:—

119.—'śrīmach-Chāḷukya-Vikrama-varsha - prathama-Naḷa-saṁvatsarada Phālguṇa-śuddha-pañchamī Bṛihaspativārad=aṁdu paṭṭabandhōtsava-nimittadiṁ' in the Waḍagēri inscription; and

120.—'śrīmach-Chāḷukya-kālada 1 neya Naḷa-saṁvatsarada Chaitra-bahuḷa-paṁchamī Maṁgaḷavāra Mēsha-saṅkrānti-vyatīpātad=andu' in the Araḷēśvar inscription.

As the latter of these two dates represents Vikramāditya VI as reigning on Chaitra-ba 5 in Śaka 998, Naḷa, Dr. Fleet interprets the word *paṭṭabandhōtsava-nimittadim* of the former of the above inscriptions as meaning 'at

† Mr. Sewell in the *Imperial Gazetteer of India* (1908), Vol. II, p. 337; Dr. Fleet in the *Ind. Antiquary*, VIII, p. 189; and in his *Kanarese Dynasties* in the *Bombay Gazetteer*, Vol. I, p. 444; Dr. Bhandarkar in his *Early History of the Deccan*, p. 85; and Kielhorn in *Ind. Antiquary*, Vol. XXII, p. 109.

the celebration of the anniversary of the day of his coronation' and hence concludes that the coronation itself took place on Monday, Phālguna-su 5 of the preceding year, that is, of Śaka 997, Rākshasa. This day, we are informed by the editor, J. Burgess, corresponded to 14th February, A.D. 1076.†

63. It may be observed here that neither the date itself, Ś. 997, Rākshasa, Phālguna-su 5* nor the suggested equivalent, 14th February, A.D. 1076 was associated with Monday as weekday. And we also know, see § 38 above, that the phrase 'Chālukya Vikrama 1, Naḷa' can refer to other years than Ky. 4177 expired. I shall therefore ignore Dr. Fleet's suggestion and explanation and proceed to consider the dates themselves and find out their equivalents in the light of § 39 above.

64. Taking then the Waḍagēri inscription, the possible equivalents of Śaka 998, Phālguna-su 5, Thursday—the day of Vikramāditya's coronation—are four; namely 14th February, A.D. 1073 (year preceding mean-sign Naḷa, lunar Phālguna, and beginning *tithi*); 6th March, A.D. 1074 (northern luni-solar Naḷa, solar Phālguna or Mīna, ending *tithi*); 12th February, A.D. 1076 (year preceding southern luni-solar Naḷa or following northern luni-solar Naḷa, lunar Phālguna, ending *tithi*) and 2nd March, A.D. 1077 (southern luni-solar Naḷa, solar Phālguna or Mīna, ending *tithi*). The second of the above dates, namely, Chā. Vi. 1, Naḷa, Chaitra-bahuḷa 5, Tuesday, and Mēsha-saṅkrānti—is irregular, and I cannot get any satisfactory equivalent of this date.

65. The coronation of Vikramāditya VI must have therefore taken place in either Śaka 994, Śaka 995, Śaka 997

† As a matter of fact, su-5 of the lunar Phālguna of Ś. 977, Rākshasa or of Ky. 4176 expired corresponds not to 14th February, but to 12th February (ending *tithi*) or 11th February (beginning *tithi*) of A.D. 1076. These two dates—namely, Ś. 997, Phālguna-sudi-5, and 14th February, A.D. 1076 are given in Mabel Duff's *Chronology of India*, p. 129, as the beginning of the Chā. Vi. era.

* *i.e.*, su-5 of the lunar Phālguna of Ky. 4176 expired.

or Śaka 998. For the sake of convenience I shall include the first two under one head and the last two under another head and give below in a table all the verifiable dates of the Chā. Vi. era given in Kielhorn's list referred to above with their equivalents. These equivalents will show whether a date yields a correct result for the southern luni-solar Jovian year only, or for the mean-sign or northern luni-solar Jovian year only or for both; that is to say, the equivalents will show whether the coronation took place in Ś. 997 or 998 on the one hand, or in Ś. 994 or Ś. 995 on the other.

No. in KIISI.	No. given by me in the list that follows.	Date.	Equivalent for the southern luni-solar Jovian year cited. Coronation in Ś. 997 or 998.	Equivalent for the northern luni-solar or mean-sign year cited. Coronation in Ś. 994 or 995.
185	...	Chā. Vi. 2, Piṅgaḷa, Śrāvaṇa-su 15, Sunday and eclipse.	Sunday[1], 6th August, A.D. 1077.	.....
186	...	Chā. Vi. 2, Piṅgaḷa, Pushya-su 7, *uttarāyaṇa-saṅkrānti* and Sunday.	Sunday, 24th[2] December, A.D. 1077.	.....
187	...	Chā. Vi. 2, Piṅgaḷa, Māgha-su 15, Monday and eclipse.	*Tuesday*, 30th[3] January, A.D. 1078.	.....

Notes:—For the sake of simplicity and convenience, I have not made use of following or preceding years or of solar months in such of the above dates in which the weekday is the only verifiable detail; in these instances, therefore, only the southern luni-solar, northern luni-solar or mean-sign Jovian year cited—as the case may be—has been made use of. Where the *saṅkramaṇa* also is given in addition to the weekday, I have felt myself at liberty to use the solar month, and the following and preceding year.

(1) Kielhorn's equivalent; see *Ind. Ant.* XXII, p. 109, No. 1.

(2) Kielhorn's equivalent.

(3) Kielhorn's equivalent.

No. in KLISI.	No. given by me in the list that follows.	Date.	Equivalent for the southern luni-solar Jovian year cited. Coronation in Ś. 997 or 998.	Equivalent for the northern luni-solar or mean-sign year cited. Coronation in Ś. 994 or 995.
189	...	Chā. Vi. 7, Dundubhi, Kārtika-su 1, Sunday.	.....	.....
190	...	Chā. Vi. 9, Raktākshi, Chaitra-su 1, Monday.	.....	.....
193	...	Chā. Vi. 12, Prabhava, Pushya-ba 14, *uttarāyaṇa-saṅkrānti, Vaḍḍavāra.*	Saturday,[4] 25th December, A.D. 1087.	Thursday,[5] 15th January, A.D. 1086.
194-*a*	...	Chā. Vi. 16, Prajāpati, Pushya-su 12, Thursday and *uttarāyaṇa-saṅkrānti.*	Thursday,[6] 25th December, 1091 A.D.	.....
194-*b*	...	Chā. Vi. 46, Krōdhin, Sunday, Śrāvaṇa-su 15, *mahā-saṅkramaṇa.*	Sunday,[7] 27th July, A.D. 1124.	.....
196	...	Chā. Vi. 18, Śrīmukha, Phālguna-ba 15, Sunday, eclipse.	Sunday,[8] 19th March, A.D. 1094.	.....

(4) Kielhorn's equivalent; see *Ind. Ant.* XXII, p. 111, No. 12; the *tithi* ba-14 began very late in the day.

(5) Year following northern luni-solar Prabhava; tropical *saṅkrānti*; *tithi* ba-14 began very late in the day according to the Brahma Siddhānta.

(6) Kielhorn's equivalent; see *Ind. Ant.* XXII, p. 110, No. 3.

(7) See No. 10 above.

(8) Kielhorn's equivalent; see *Ind. Ant.* Vol. XXII, p. 110, No. 7.

No. in KLISI.	No. given by me in the list that follows.	Date.	Equivalent for the southern luni-solar Jovian year cited. Coronation in Ś. 997 or 998.	Equivalent for the northern luni-solar or mean-sign year cited. Coronation in Ś. 994 or 995.
197	149	Chā. Vi. 18, Jyēshṭha-su 5, Monday, *saṅkramaṇa*.	...	Monday,[9] 26th May, A.D. 1091.
198	223	Chā. Vi. 19, Yuvan, Māgha-su 5, Sunday, *uttarāyaṇa-saṅkramaṇa*.	...	Sunday,[10] 15th February, A.D. 1092.
199	...	Chā. Vi. 21, Dhātu, Chaitra-su 5, Sunday.	Sunday,[11] 2nd March, A.D. 1096.	...
200	208	Chā. Vi. 21, Dhātu, Pushya-su 5, Sunday, *uttarāyaṇa-saṅkrānti*.	...	Sunday,[12] 25th December, A.D. 1093.
201	...	Chā. Vi. 21, Dhātu, Pushya-ba 13, Sunday, *uttarāyaṇa-saṅkrānti*.	...	...
202	...	Chā. Vi. 22, Bahudhānya, Pushya-ba 15, Sunday, *uttarāyaṇa-saṅkrānti*.	Sunday,[13] 23rd January, A.D. 1099.	...
203	...	Chā. Vi. 24, Pramāthin, Jyēshṭha-su 15, Sunday, eclipse.	Sunday,[14] 5th June, A.D. 1099.	...

(9) See No. 149 below.

(10) See No. 223 below.

(11) Kielhorn's equivalent : see *Ind. Ant.* XXII, p. 110, No. 6.

(12) See No. 208 below.

(13) Kielhorn gives *Saturday*, 25th December, A.D. 1098 as the equivalent; but the date given above is better as it fits all details.

(14) Kielhorn's equivalent ; see *Ind. Ant.* XXII, p. 110, No. 4.

No. in KLISI.	No. given by me in the list that follows.	Date.	Equivalent for the southern luni-solar Jovian year cited. Coronation in Ś. 997 or 998.	Equivalent for the northern luni-solar or mean-sign year cited. Coronation in Ś. 994 or 995.
204	...	Chā. Vi. 27, Chitra-bhānu, Pushya-su 13, Wednesday, *uttarāyaṇa-saṅkrānti.*	Wednesday,[15] 24th December, A.D. 1102.	...
205	...	Chā. Vi. 27, Chitra-bhānu, Phālguna-ba 1, Monday.	Monday,[16] 23rd February, A.D. 1103.	Monday,[17] 27th February, A.D. 1100.
206	217	Chā. Vi. 27, Chitra-bhānu, Phālguna-ba 15, Sunday, *saṅkrānti-vyatīpāta.*	...	Sunday,[18] 23rd January, A.D. 1099.
207	...	Chā. Vi. 28, Subhānu, Pushya-ba 10, Friday, *uttarāyaṇa-saṅkrānti.*	Friday,[19] 25th December, A.D. 1103.	...
208	...	Chā. Vi. 32, Sarvajitu, Chaitra-su 3, Thursday.	...	...
209		Chā. Vi. 32, Sarvajit, Śrāvaṇa-ba 5, *Vaḍḍavāra.*	Saturday,[20] 10th August, A.D. 1107.	...
210	...	Chā. Vi. 33, Sarvadhārin, *heijjugi-pūrṇimā, i.e.*, Āśvina-su 15, Monday.	Monday,[21] 21st September, A.D. 1108.	Monday,[22] 25th September, A.D. 1105.

(15) Kielhorn's equivalent.
(16) Kielhorn's equivalent.
(17) Northern luni-solar year, ending *tithi.*
(18) See No. 217 below.
(19) Kielhorn's equivalent.
(20) Kielhorn's equivalent.
(21) Kielhorn's equivalent; see *Ind. Ant.* XXII, p. 110, No. 5.
(22) Northern luni-solar year, ending *tithi.*

No. in KLISI.	No. given by me in the list that follows.	Date.	Equivalent for the southern luni-solar Jovian year cited. Coronation in Ś. 997 or 998.	Equivalent for the northern luni-solar or mean-sign year cited. Coronation in Ś. 994 or 995.
211	221	Chā. Vi. 33, Sarvadhārin, Pushya-su 5, *Bṛihavāra, uttarāyaṇa--saṅkrānti.*	...	Saturday,[23] 24th December, A.D. 1104.
212	...	Chā. Vi. 37, Nandana, Pushya-su 4, Tuesday, *uttarāyaṇa-saṅkrānti.*	Tuesday,[24] 24th December, A.D. 1112.	...
214	...	Chā. Vi. 38, Vijaya, Chaitra-su 1, Wednesday.	Wednesday,[25] 19th March, A.D. 1113.	Wednesday,[26] 23rd March, A.D. 1110.
216	210	Chā. Vi. 39, Jaya, Chaitra-su 15, Sunday, lunar eclipse and *saṅkrānti-vyatīpāta.*	...	Tuesday,[27] 25th April, A.D. 1111.
218	167	Chā. Vi. 45, Śubhakṛit, Chaitra-su 8 Monday, *uttarāyaṇa-saṅkrānti.*	Monday,[28] 24th March, A.D. 1124.	...
219	...	Chā. Vi. 46, Plava, Āśvayuja-ba 5, Sunday.	Sunday,[29] 2nd October, A.D. 1121.	Sunday,[30] 6th October, A.D. 1118.

(23) See No. 221 below.

(24) Kielhorn's equivalent.

(25) Kielhorn's equivalent; beginning *tithi.*

(26) Mean-sign year, ending *tithi.*

(27) See No. 210 below.

(28) See No. 167 below.

(29) Kielhorn's equivalent.

(30) Northern luni-solar year; ending *tithi.*

66. It will thus be seen that of the 29 dates contained in the table, 13 dates yield correct results for the southern luni-solar year only, 6 dates for the mean-sign or northern luni-solar year only, and 5 dates for both; four dates are irregular. On the whole therefore, 18 dates yield correct results for the southern luni-solar Jovian year cited, and 11 dates are correct for the mean-sign or northern luni-solar Jovian year cited. If we exclude dates of the type of *KLISI.* No. 190, and take into consideration such dates as give more than one detail, we will have 12 dates correct for the southern luni-solar, and 6 dates correct for the mean-sign or northern luni-solar, Jovian year cited. If, on the other hand we consider all the 29 dates and also work for the following and preceding year and for solar months, where necessary, the number of dates yielding correct results for the southern luni-solar and mean-sign or northern luni-solar Jovian years will be respectively twenty and seventeen.

67. These results can be interpreted in two ways. We know (see § 8 above) that in many cases the Śaka years (Chā. Vi. years) appropriate to southern luni-solar Jovian years are combined with what, on examination, turn out to be years of the northern luni-solar or mean-sign system, and that in many other cases the Śaka years (Chā. Vi. years) appropriate to mean-sign or northern luni-solar Jovian years are associated with what on examination turn out to be years of the southern luni-solar system. It is therefore open to us to posit Ś. 997 or Ś. 998 as the year in which Vikramāditya VI was crowned, and to regard that the 'wrong' Chā. Vi. year has been used in the case of *KLISI.* Nos. 189, 193, etc. On the other hand, one may posit Ś. 994 or Ś. 995 as the year of Vikramāditya VI's coronation, and consider that 'wrong' Chā. Vi. years have been used in *KLISI.* Nos. 185, 186, 187, etc.

68. How, then, can one determine the exact year and date of Vikramāditya's coronation? It is obvious that he could not have been crowned in Ś. 994 and Ś. 995 and Ś. 997 and Ś. 998. He must have been crowned in one of these years, and on one of the dates mentioned above; and

the problem is to discover by the help of the dates given above on which of the above four days he was crowned.

At first sight, one would be tempted to declare for Ś. 997 or Ś. 998 as the year of coronation. As seen above, the majority of the dates above given are in favour of, that is, yield correct results for, these years. And what is more, the date *KLISI.* No. 177 shows that Vikramāditya VI's predecessor, Sōmēśvara II Bhuvanaikamalla, was reigning on 25th December, A.D. 1074. In ordinary circumstances, this would be a conclusive reason for rejecting the years Ś. 994 and Ś. 995 as the year of Vikramāditya VI's accession to the throne. But, in this instance, however, the evidence of the above date is not decisive; for, as we know (Fleet's *Kanarese Dynasties*, pp. 444—445), Vikramāditya VI did not come to the throne in the usual manner, *i.e.*, after the natural death of his predecessor, but after forcibly setting him aside. And some time before he overcame his brother Sōmēśvara II in battle, Vikramāditya VI assumed the imperial titles and perhaps had himself even crowned; see, for example, *Ep. Carn.* XI, Cd. 82 which mentions Vikramāditya as ruler on 23rd December, A.D. 1073. From about A.D. 1073, therefore, until the defeat and capture of Sōmēśvara II there were two Chālukyan rulers with imperial titles bearing sway in different parts of the empire. There is thus nothing to prevent one from positing Ś. 994 or Ś. 995 as the year in which Vikramāditya assumed imperial titles and had himself crowned. And even when one adheres to the southern luni-solar years only, there is no means of knowing in which of the years, Ś. 997 or Ś. 998, Vikramāditya was crowned.

69. The result, then, of the above investigation is inconclusive; we have not been enabled to decide definitely on which day Vikramāditya VI was crowned. For this purpose, a more thorough examination of the dates at the close of his predecessor's reign is necessary or some other extraneous help must be had. And even when the day of his coronation is fixed, the dates of the events recorded in *KLISI.* Nos. 193, 205, 210, etc., will be still uncertain and

will have to be determined in the same manner as the date of his coronation.

70. This examination of the above dates has shown the uncertainty of dates of the type of that given in the Waḍagēri inscription above. The history of the Kanarese and Telugu countries has mostly been written, as above stated, with the help of dates of this type. It is obvious therefore that there must be some mistakes at least in the history as it is now written; and that a thorough re-examination of all the dates is necessary if the history has to be properly written.

71. It is for this reason that I have, as far as possible, avoided dates of this type while giving illustrative examples of the various usages mentioned above. Where, however, I have been obliged to give dates of this type and to compute their equivalents, I have, as a general rule, contented myself with giving one only of the possible equivalents. In the case of southern luni-solar Jovian years, I have in such cases made use, generally, of the year cited, or of the following or the preceding year; and similarly in the case of mean-sign and northern luni-solar years. I have not, therefore, generally in the case of such dates made use of solar months; nor have I made use of northern luni-solar (or mean-sign) or southern luni-solar Jovian years when the Śaka year cited has indicated the use of the southern luni-solar or northern luni-solar (or mean-sign) year respectively. In short, dates of this type yield such uncertain results when calculated that it is not worth while computing them in those places where absolute exactness is required. If in spite of this I have included a few dates of this type in the list of dates given below, from *KLISI.*, it is because my object therein was merely to show that the dates are not irregular. It is unnecessary to add that in such instances there exist, almost always, other possible equivalents, and that the equivalents given by me should not, as a general rule, be made use of as affording bases for Indian chronology. It is however very probable that in the great

majority of cases, the names of lunar months indicate lunar months and that the *tithis* cited are ending *tithis*.

72. I was also at first disposed to think that in such cases where dates of the above type cited both the Śaka year and Jovian year, the two corresponding with each other according to any of the three systems, and where the year cited yielded correct results, it was improbable that Jovian years of other systems might be intended. This opinion, however, I was forced to revise in the light of the experience gained by computing the two Malkapuram dates noticed above (§ 51). It will be observed that in this instance, the date in the Telugu inscription, 'Śaka 1452, Khara, Chaitra-su 2, Monday', indicates that the southern luni-solar Khara is intended, and that, for this year, the date works out quite correctly. It is only with the help yielded by the Persian inscription that we are in this instance enabled to find out that the year intended is the northern luni-solar Khara.

73. Dates of the type of Chōḷa and Pāṇḍya dates, too, are similarly uncertain and unreliable. It does not come within the scope of this booklet to enter fully into this subject; but, inasmuch as such dates are important for the history of South India, I have added a short appendix about Pāṇḍya dates (see Appendix A) at the end of the booklet, besides giving below the correct equivalents of a few Chōḷa dates.

Regular and Irregular Dates

74. It follows from what has been written above that one has to be very circumspect in pronouncing any given date to be irregular. I subjoin here two examples—one of a regular date which has wrongly been pronounced irregular, and another of a date which is really irregular—which will illustrate this statement.

75. The date, '3rd year of Kulōttuṅga-Chōḷa III, 27th day of Siṁha, the day of Aśvinī, Wednesday' (which was discussed in § 47 above) has been pronounced by Kielhorn to be irregular (*KLISI.* No. 815). He has also declared (*Ep. Ind.* Vol. VII, p. 172) that he had failed to find any

year in Kulōttuṅga-Chōḷa III's reign for which the date would be correct.

This date has been examined by Mr. Svamikannu Pillai also in his pamphlet entitled *Hints to Workers in South Indian Chronology*, p. 4. He, too, comes to the conclusion that the date is irregular, but that on emending the phrase '3rd year' to '29th year' the date would regularly correspond, working with the Ārya Siddhānta, to Wednesday, 23rd August, A.D. 1206. An elaborate calculation and explanation is given by him on p. 4 of the above pamphlet in support of this conclusion.

I have shown above (§ 47) that the date '3rd year of Kulōttuṅga-Chōḷa III, 27th day of Siṁha,' has 14 possible equivalents. Three of these equivalents, namely, 23rd August, A.D. 1178; 22nd August, A.D. 1179 and 20th August, A.D. 1180 are associated with Wednesday; and of these three, one day—namely **Wednesday, 22nd August, A. D. 1179** is associated with the *nakshatra* Aśvinī (See No. 159 below). This therefore is the correct equivalent of the given date.

It can readily be seen that there is not the slightest irregularity in the date. The composer of the inscription evidently used the Brahma Siddhānta in his calculations, a point which did not strike Messrs. Pillai and Kielhorn. For another instance of this kind, see No. 158 below, which has been declared irregular by Messrs. Fleet, S. B. Dikshit and Kielhorn, again because they did not recognise that here the composer had made use of the Brahma Siddhānta.

76. A pillar inscription at Belgāme—(*Ep. Carn.* VII, Sk. 87) gives the following date:—

śrīmach-Chāḷukya-Vikrama-varshada 55 neya Virōdhikṛitu-saṁvatsarad=Āśvaijad=amavāsey=Ādivāra sūrryagrahaṇad=andu.

Chā. Vi. 55 corresponds on the assumption that the era began in Ś. 998 or Ś. 997 to the southern luni-solar Virōdhikṛit or Śaka 1053, and on the assumption that the era began in Ś. 994 or Ś. 995, to Ś. 1049—mean-sign Virōdhikṛit or to

Ś. 1050, northern luni-solar Virōdhikṛit. The years that may possibly be intended, therefore, by the phrase 'Chā. Vi. 55, Virōdhikṛit' are (see § 38 above) Ś. 1048 (year preceding mean-sign Virōdhikṛit), Ś. 1049 (mean-sign Virōdhikṛit, so far as Āśvayuja is concerned), Ś. 1050 (northern luni-solar Virōdhikṛit), Ś. 1051 (year following the above), Ś. 1052, Ś. 1053, and Ś. 1054. Of these years, no eclipses—whether visible or invisible in India—took place on the *amāvāsyā* at the beginning or at the end of Āśvina in Ś. 1048, Ś. 1049 and Ś. 1054. In Ś. 1050, Ś. 1051 and Ś. 1052 solar eclipses took place on the *amāvāsyā* at the end of Āśvina; and in Ś. 1053, one took place on the *amāvāsyā* at the beginning of Āśvina. Of these, the eclipse in Ś. 1050 was not visible in India, while the others were visible.

None of these eclipses, however, were associated with Sunday as weekday. The date given above therefore must be pronounced to be irregular.

77. There seems to be no doubt that there is a slight irregularity in dates of the type of Nos. 8, 9 and 10 above which yield correct results for the southern luni-solar Jovian years only, but where the Śaka years cited correspond to the northern luni-solar or mean-sign years of the same name. Similarly, it cannot be denied that there is some irregularity in dates of the type of Nos. 24, 25, 26, 27 discussed above in § 9. The irregularity in neither of these types of dates is however such as to make it impossible to find out the year that is intended.

78. There does not seem to be any irregularity, on the other hand in dates of the type of Nos. 13, 14, etc., which yield correct results for mean-sign or northern luni-solar years only, but where the Śaka years cited correspond to the southern luni-solar year of the same name. In such instances, I am inclined to think that the Śaka years are Jupiter's years, *i.e.*, years of 361 days and 1½*gh.* (roughly) beginning and ending on the same day as the mean-sign Jovian years, and not luni-solar years beginning with Chaitra-su 1 or solar years beginning with the Mēsha-saṅkrānti. The reason for such opinion is the comparatively large

number of dates of this type that is met with as well as the fact that, otherwise, it is difficult to conceive how the composers could have quoted Śaka years that were *in the future* and sometimes (see No. 5 above) took 8 or 10 years to come. In the case of dates of the type of Nos. 8, 9, 10 on the other hand it is easy to understand that the composer has quoted, instead of the current Śaka year, a Śaka year that was *past*. It seems therefore that there were more ways than one of keeping the Śaka reckoning, one practice making the Śaka year begin on Chaitra-su 1 and another on the day on which the mean-sign Jovian year began. In all probability, there were, besides the above two, other practices in vogue.

79. And as regards dates where the year following or the year preceding the Jovian year cited is to be taken, or where a Śaka year (regnal year, or a year of other eras) expresses the year preceding the Śaka year current or following the Śaka year expired, it seems to me that such dates embody some peculiar usages only and that they ought not to be regarded as irregular. Even if they are regarded as irregular, the years intended by the dates are easily got at.

80. It is not easy to understand why such peculiar usages should have arisen. The only explanation that I can suggest is that these usages might have had their origin in the circumstance that a given Jovian year of the mean-sign and northern luni-solar systems together was current, as a rule, for more than one year (of 365 days) and in some cases for almost two years. This perhaps suggested the idea that the name of every Jovian year could be used of two years, the current year and the year preceding or the current year and the year following. And, lastly, the usage seems to have been extended to those cases also where Śaka years only were used and the names of the corresponding Jovian years were suppressed.

The use of the word *uttarāyaṇa*, of *vyatīpāta*, of *sōma-grahaṇa* (lunar eclipse) and *sūrya-grahaṇa* (solar eclipse) in connection with *saṅkrāntis* as unmeaning appanages is also a matter of usage. So also is the use of beginning *tithis*, *nakshatras* and *yōgas* instead of ending ones, and of

tropical *saṅkrāntis* by the side of sidereal *saṅkrāntis*. Such practices cannot be styled irregular.

Many Ways of expressing a date

81. I have shown above that dates like 'Śaka 1053, Virōdhikṛit, Āśvayuja-śuddha-dvitīyā' can denote any one of about 28 different days. Conversely, it is also possible to express the same European date in about 28 different ways by the Hindu calendar. Sunday, 23rd January, A.D. 1099, for example, was the day on which ba-14 of solar Pushya or Makara, and lunar Māgha, ended, and the *amāvāsyā* began (at 8*gh.* 19*p.* after mean sunrise). With that day was also associated, the [Kumbha-]*saṅkrānti* which took place at 10*gh.* 57*p.* (S.S.) or 9*gh.* 49*p.* (A.S.) after mean sunrise on that day. The Jovian year current at the time according to the southern luni-solar system was Bahudhānya, according to the northern luni-solar system Vishu (Vṛisha) and according to the mean-sign system, Chitrabhānu. The year was Ky. 4199 expired.

82. This date, **Sunday, 23rd January, A.D. 1099**, can be expressed in terms of the Hindu calendar, following the usage of the inscriptions, in the following different ways :—

Śaka 1019, Īśvara,*		
or		
Ś. 1020, Bahudhānya,	Pushya-bahuḷa 14,	
or	or	
Ś. 1021, Pramāthin,	Māgha-bahuḷa 14,	
or	or	Sunday, and
Ś. 1022, Vikrama,	Pushya-amāvāsyā,	*uttarāyaṇa-saṅkrānti.*
or	or	
Ś. 1023, Vishu,	Māgha-amāvāsyā,	
or	or	
Ś. 1024, Chitrabhānu,	Phālguna-amāvāsyā,	
or		
Ś. 1025, Svabhānu,		

* Instead of Śaka 1019 one might have S. 1018 or 1020 or 1017 or 1021 ; and similarly in the case of the following years.

Instead of Īśvara one might substitute the name of the northern

Instead of 28‡ different ways, we have actually 35, the excess of 7 being due to the ambiguity pointed out above (see § 36) of phrases like Phālguna-amāvāsyā.

83. Though it is thus *possible* that a European date might, in the inscriptions, be described in 6, 16, 28 or 35 different modes, it is too much to expect to find all possible modes actually used in the inscriptions to describe any European date. So far as the actual usage of the inscriptions is concerned, I have found but five modes used in describing the same European date; and while a computation of all verifiable dates, may, perhaps, furnish examples of five more modes being used, this, in my opinion, is the utmost that can be expected.

84. I subjoin here the examples of different modes of describing the same date that I have so far met with in the inscriptions :—

121.—*KLISI.* No. 202. Baḷagāṁve inscription of the reign of the W. Chālukya Vikramāditya VI Tribhuvanamalla :—

śrīmach-Chāḷukya-Vikrama-kālada 22 neya Bahudhānya-saṁvatsarada Pushyad=amāvāsyey=Ādityavāram=uttarāyaṇa-saṅkrānti-vyatīpātad=aṁdu.

122.—*KLISI.* No. 206. Another Baḷagāṁve inscription of the reign of the W. Chālukya Vikramāditya VI :—

śrīmach-Chāḷukya-Vikrama-varshada 27 neya Chitrabhānu-saṁvatsarada Phālguṇad=amāvāsye Ādityavāra-saṅkramaṇa-vyatīpātad=aṁdu.

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luni-solar or mean-sign Jovian year that was current in Ś. 1019; and similarly for Ś. 1020 and Ś. 1021.

It must also be remembered that the name of the mean-sign Jovian year may sometimes come out differently according as the Brahma or Sūrya Siddhānta is used for calculation and that this adds to the number of different modes of expressing the same date.

‡ If the preceding year but one and the following year but one are also included in our purview, the number of modes will naturally be more than 28. See the footnote on p. 72 above.

These two apparently different dates express the same European date, namely, **Sunday, 23rd January, A.D. 1099** (see above, § 82). In the former date, the Jovian year is cited according to the southern luni-solar system, and the name of the lunar month is used to express the corresponding solar month. In the latter date, the Jovian year is cited according to the mean-sign system, and the term 'Phālgunad=amāvāsye' expresses the *amāvāsyā* at the beginning of Phālguna. In both cases, the *tithi* cited is that which commenced on the day.

123.—*Ep. Carn.* VII, Sk. 129, p. 176[1]—2; 238[3]—12. Baḷagāṁve inscription of the W. Chālukya Bhuvanaikamalla :—

Saka-varsha 993 neya Virōdhikṛit-saṁvatsarada Pushya-suddha 1 Sōmavarad=andin=uttarāyaṇa-saṅkrānti-parbbanimittadiṁ.

124.—*Ep. Carn.* VII, Sk. 130; p. 177[1]—30; 240[3]—30. Another Baḷagāṁve inscription of the same ruler :—

Saka-varsha 997 neya Rākshasa-saṁvatsarada Pushya-śuddha 1 Sōmavārad=andin=uttarāyaṇa-saṅkrānti-parbbanimittadin.

Both these refer to the same European date, namely, **Monday, 23rd January, A.D. 1072**, on which day, su-1 of solar Pushya commenced at 8*gh.* 16*p.* after mean sunrise, and the *saṅkrānti* took place at 11*gh.* 46*p.* (S.S.) or 10*gh.* 24*p.* (A.S.) after mean sunrise.

In the former date, the Jovian year is cited according to the southern luni-solar system, and in the latter date according to the northern luni-solar system, while the Śaka year cited in the latter date corresponds to the southern luni-solar year Rākshasa.

125.—*Ep. Carn.* V, Ak. 79; p. 329[1]—28; 442[3]—67. Arasikeṛe inscription of the time of Ballāḷa II :—

Saka-varshada 1105 Śōbhakṛit-saṁvatsarada Pushyad=amāvāsye Sōmavāra vyatīpāta-saṅkramaṇad=andu.

126.—*Ep. Carn.* V, Ak. 90; p. 343[1]—21; 457[3]—56. Another Arasikere inscription of the time of Ballāḷa II:—

Saka-varshada 1111 neya Kīlaka-saṁvatsarada Paushyad=amāvāsye Sōmavāra vyatīpāta-saṅkramaṇad=andu.

127.—*Ep. Carn.* V, Ak. 39; p. 286[1]—26; 386[3]—44. Kuruvaṅka inscription of the time of Ballāḷa II:—

Saka-varsha 1107 neya Visvāvasu-saṁvatsarada Paushyad=amāvāsye Sōmavāra vyatīpāta-saṅkramaṇad=andu.

128.—*Ep. Carn.* V, Ak. 22; p. 276[1]—23; 372[3]—62. Bāṇāvāra inscription of the time of Ballāḷa II:—

Saka-varshada 1110 neya Plavaṅga-saṁvatsarada Paushyad=amāvāsye Sōmavāra vitīpāta-saṅkramaṇad=andu.

The above four dates describe the same European date, **Monday, 24th January, A.D. 1183**; on this day the *amāvāsyā* of solar Pushya or lunar Māgha commenced at 46*gh.* 16*p.* after mean sunrise and the *yōga* Vyatīpāta at 33*gh.* 24*p.* after mean sunrise; on this day also fell or was observed the Kumbha-saṅkrānti which occurred at 55*gh.* 6*p.* (S.S.) or 53*gh.* 34*p.* (A.S.) after mean sunrise of the previous day.

The first of the inscriptions given above (No. 125) cites the Jovian year according to the southern luni-solar system, the third (No. 127) according to the northern luni-solar system and the second and the fourth (Nos. 126, 128) according to the mean-sign system; the Śaka years cited in all the four inscriptions, however, correspond to the southern luni-solar Jovian years mentioned therein.

In the case of the first and the second of the above inscriptions (Nos. 125, 126), we have to work for the years previous to those cited; in the case of the third (No. 127), for the year following that cited and in the case of the fourth (No. 128), for the actual year cited.

It will be observed that the variation in the description of the date is merely with respect to the name of the Jovian year and the Śaka year associated with it; for the rest, the above inscriptions cite the name of the same month and *tithi*. A Duggalāpura inscription on the other

hand which also describes the same date has a variation with respect to the name of the month; this reads as follows :—

129.—[*Ep. Carn.* VI, Tk. 10; p. 209[1]—6th line from bottom; 408[3]—28. Duggalāpura inscription of the time of Ballāḷa II :—]

Saka-varishada 1106 neya Śōbhakṛitu-saṁvatsarada Māghad-amāvāse Sōmavāra vyatīpātad=andu.

The Jovian year cited is the same as in No. 125 above; the Śaka year, however, is 1106 instead of 1105; the detail about the *saṅkrānti* is left out and the name of the month is given as Māgha instead of Pushya. Although the *saṅkrānti* is not mentioned, the mention of Vyatīpāta shows conclusively that the day intended by this date, too, is Monday, 24th January, A.D. 1183.

130.—*Ep. Carn.* V, Ak. 102b; p. 352[1]—2; 471[3]—92. Kātikeṛe inscription of the time of Ballāḷa II :—

Saka-varusha sāsirada Śōbhakṛitu-saṁvatsarada Jēshṭa-suda-trayōdasi Vaḍavāra uttarāyaṇa-saṅkramāṇad=andu.

131.—*Ep. Carn.* V, Ak. 61; p. 307[1]—25; 414[3]—43. Hoḷalakere inscription of the time of Ballāḷa II :—

Saka-varusha 1108 Visvāvasu-saṁvatsarada Jēshṭa-suddha-trayōdasi Vaḍḍavāra uttarāyaṇa-saṅkramaṇa-vyatīpātad=andu.

These two dates express the same day—**Thursday, 24th May, A. D. 1184**; on this day su-13 of Jyēshṭha began about 35 minutes before mean sunrise and about 5 minutes before true sunrise, and was current for the whole of that day and part of the next. The *tithi* therefore on that day was su-13; on that day also occurred the Mithuna-saṅkrānti according to the Brahma Siddhānta at about 36*gh.* 37*p.* after mean sunrise.

In the first of the inscriptions given above (No. 130) we have to work for the year following that cited, and in the second, for the year previous to that cited. The Jovian year is, in both instances, cited according to the southern

luni-solar system ; but in the first date, the Śaka year cited corresponds to the northern luni-solar and not to the southern luni-solar Virōdhikṛit. For the rest, the two inscriptions cite the same month and *tithi*.

For other inscriptions describing the same European date in different ways, see *Ep. Carn.* XI, Dg. 128, Dg. 135 and Jl. 12; *Ep. Carn.* VIII, Sa. 108 (bis) and Sa. 109 (bis), and Nos. 252 and 253 below.

DATES FROM KIELHORN'S LIST OF INSCRIPTIONS OF SOUTHERN INDIA (APP. TO EPIG. INDICA, VOL. VII.).

A :—Chaitradi southern luni-solar years

132.—*KLISI.* No. 258—Tērdāḷ inscription of the Daṇḍanāyaka Bhāyidēva :—

Saka-varśaṁ 1109 neya Plavaṁga-saṁvatsarada Chaitra-su 10 Brihaspativārad-aṁdu.

Ś. 1109=Plavaṅga ; in this year su-10 of the Chaitra at the end of the solar year ended at 15*gh.* 2*p.* after mean sunrise on **Thursday, 10th March, A.D. 1188.** This day therefore is the regular equivalent of the given date.

133.—*KLISI.* No. 388-b—Bēlūr plates, date of the time of the Hoysala Narasiṁha III :—

" Sunday the fifth day of the bright fortnight of Chaitra of the Ānanda *saṁvatsara.*"

Ānanda=Ś. 1176 ; in the Chaitra at the end of this solar year, su-5 ended at 36*gh.* 5*p.* after mean sunrise on **Sunday, 14th March, A.D. 1255.** This therefore is the equivalent of the given date.

134.—*KLISI.* No. 240—Baḷagāṁve inscription of the time of the W. Chālukya (Taila III) Trailōkyamalla :—

Trailōkyamalla-varshada 6 neya Yuva-saṁvatsarada Māghad-amāvāsyey-uttarāyaṇa-saṁkrānti- Sōmavāra-vyatīpātad=aṁdu.

Yuvan=Ś. 1077 ; Kielhorn has calculated for the Makara-saṅkrānti and gives Sunday, 25th December, A.D. 1155 as a possible equivalent. The inscription however expressly mentions Māgha-amāvāsyā, which began at 30*gh.* 23*p.* after mean sunrise on **Monday, 23rd January, A.D. 1156 ;** on this day the Kumbha-saṅkrānti occurred at 55*gh.* 54*p.* (S.S.) or 54*gh.* 31*p.* (A.S.) after mean sunrise. The day intended by the inscription is therefore evidently this Monday.

135.—*KLISI.* No. 267—Nēsargi (Nēsarige) inscription of the Raṭṭa Kārtavīrya IV :—

Saka-varśa 1141 neya Bahudhānya-saṁvatsarada Māgha-śuddha 7 Guruvārad=aṁd=uttarāyaṇa-saṁkrānti kūḍida puṇya-tithiyal.

Kielhorn gives two days—Tuesday, 25th December, A.D. 1218 and **Thursday, 24th January, A.D. 1219**—as alternative equivalents. But it is the latter alone of these two that really corresponds to the given date ; for on this Thursday, Māgha-su 7 ended at 18*gh.* 47*p.* after mean sunrise and the *uttarāyaṇa-saṁkrānti, i.e.*, Kumbha-saṁkrānti occurred on this day at 14*gh.* 1*p.* (S.S.) or 12*gh.* 19*p.* (A.S.) after mean sunrise.

136.—*KLISI.* No. 530—British Museum plates of Sadāśivarāya of Vijayanagar :—

kramād=vasu-hay-ābdh-īṁdu-gaṇitē Śaka-vatsarē |
Naḷa-saṁvatsarē māsi Mārgaśīrsha iti śrutē ||
sūryōparāgē=māvāsyā-tithā (thau) Mārttāṁḍa-vāsarē |

Nala=Ś. 1478 or A.D. 1556. In this year there took place a solar eclipse visible in India on the *amāvāsyā* at the beginning of Mārgaśīrsha, on **2nd November, A.D. 1556**: the weekday however was Monday and not Sunday. This seems to be the day intended by the inscription.

137.—*KLISI.* No. 249-b.—Halsī inscription of the reign of the Kādamba Śivachitta Paramardin :—

saṁnivṛittē Kalēh kāla (ē)=śva-sapta-dvi-payōnidhau |
pravardhamānē tad-rājyē paṁcha-viṁśē samē Kharē |
Māghē cha śuddha-dvādaśyāṁ māsē vārē Vṛi (Bṛi)haspatēḥ |
saṁprāptē Vaidhṛitau yōgē.

This date is irregular; for Ky. 4277 is Durmukha and not Khara ; Khara=Ky. 4272.

In the year Khara (=Ś. 1093 or Ky. 4272) Māgha-su 12 ended at 53*gh.* 27*p.* after mean sunrise on **9th January, A.D. 1172,** on which day Vaidhṛiti commenced at 14*gh.* 50*p.* after mean sunrise ; the weekday however was Sunday and not Thursday.

In Ky. 4277 (=Ś. 1098), Māgha-su 12 ended at 32*gh.* 36*p.* after mean sunrise on the **13th January, A.D. 1177**; on this day Vaidhṛiti ended at 16*gh.* 49*p.* after mean sunrise and the weekday was Thursday. The Jovian year however was not Khara but Durmukha. One of these two days seems to be the day intended by the inscription.

138.—*KLISI.* No. 520—Vijayanagar inscription of the time of Achyutarāya :—

'In the year of Śālivāhana, 1463, corresponding to the year Śārvarī, in the month of Kārttika, *sudi-pañchamī*, Guruvār.'

This corresponds to **Thursday, 4th November, A.D. 1540**, on which day Kārttika-su 5 of Śārvarin (=Ś. 1463 current) expired at 2*gh.* 34*p.* after mean sunrise.

139.—*KLISI.* No. 571—Ṭēki plates of the E. Chālukya Chōḍagaṅga Rājarāja Vishṇuvardhana :—

śrī-vijayarājya-saṁvatsara (rē) sapta-daśē....
....Śākābdē rasa-kh-āṁbar-ēṁdu-gaṇitē Jyēsṭhē=dha (tha) māsē sitē pakshē pūrnna(rṇṇa)-tidhau(thau) dinē Sura-gurōr=Jyēshṭhāṁ Śaśāṁkē gatē | Siṁhē lagna-varē....

The 17th year of the reign of Kulōttuṅga-Chōḍa I (which is referred to here) corresponds to A.D. 1087[1] or Ś. 1009. In this year, Jyēshṭha-su 15 ended on **Thursday, 20th May, A.D. 1087** at 21*gh.* 54*p.* after mean sunrise ; and the *nakshatra* Jyēshṭhā, too, was current on this Thursday up to 46*gh.* 11*p.* after mean sunrise. This therefore is the regular equivalent of the given date.

Kielhorn has marked this date as irregular for Ś. 1006 ; he interpreted the word *rasa* in *rasa-kh-āmbarēndu* as 6 and thus got at the year Ś. 1006 for which the date *is* irregular. But the mention of the 17th year of Kulōttuṅga-Chōḍa I indicates to us that we must here interpret the word *rasa* as 9 (having reference to the 9 *rasas, Śṛiṅgāra, Vīra,* etc.) which yields to us the year Ś. 1009. And that

1 See *Epig. Indica,* Vol. VII, p. 7 ; see also *ibid.* Appendix, p. 124, footnote 4.

this is the correct way of interpretation is further borne out by the fact that the given date works out correctly for this year. There is thus no doubt that the equivalent of the given date is Thursday, 20th May, A.D. 1087.

140.—*KLISI.* No. 579-a—Śrīkūrmam inscription of the E. Chālukya Viśvanātha :—

svasti śrī-Śāka-varshē śaśi-guṇa-ravi-gē ch=Ā[śvayuk-śu][1]kla-pakshē māsē Kauṁtēya-tithyāṁ Suraguru-divasē.

Kielhorn has passed by this date, noting it as irregular, because evidently he did not make out the meaning of the word *Kauntēya-tithi*[2]. This *tithi* does not mean *śukla-pañchamī* but Āśvina-śukla-daśamī, which is otherwise known as Vijaya-daśamī,[3] because tradition[4] asserts that it was on this day that the Pāṇḍava Arjuna, having thrown off his disguise as the year of *ajñāta-vāsa* was over, made Prince Uttara get down his bow, arrows and other equipment from a *śamī* tree in which they had been hidden, set forth on his victory over the army of the Kurus led by Duryōdhana himself in person, and Karṇa, Bhīshma, Drōṇa and others, and retook the cows which had been taken captive by them.

Ś. 1231 current=A.D. 1308 [=Kīlaka by the southern luni-solar system]. In this year, the *Kauntēya-tithi* or *Vijaya-daśamī* ended at *5gh.* 43*p.* on **Thursday, 26th September, A.D. 1308.** This therefore is the regular equivalent of the given date.

141.—*KLISI.* No. 942—Śuchīndram inscription of the Kēraḷa king Mārtaṇḍavarman :—

Rākālōkē Śakābdē Surapati-sachivē Siṁhayātē Tulāyām =ārūḍhē padminīśe=py=Aditidinayutē Bhānuvārē cha

Ś. 1312=A.D. 1390; in this year, in the *solar* month of

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[1] It is better to read 'ch=Āśvinē śukla-.'

[2] This is evident from his note 4 on p. 36, *Ep. Indica*, Vol. V.

[3] Vijaya is one of the names of Arjuna; and his connection with this *tithi* is still shown by the epithet 'Vijaya-daśamī' which is applied to Āśvina-su 10 in almost all Indian almanacs.

[4] At least, such is the tradition in Southern India.

Tulā, the *nakshatra* Punarvasu (which has Aditi for deity) ended at 14*gh.* 41*p.* after mean sunrise on **Sunday, 2nd October, A.D. 1390**; the true position of Śukra (the preceptor of the Asuras) at that time was in Siṁha (138°). This therefore is the regular equivalent of the date given above.

The same equivalent is given by Kielhorn, too, but, with doubts. He has interpreted the date to mean '. . on Sunday, the day of Punarvasu, when Bṛihaspati, the preceptor of the Suras was in Siṁha;' and as at this time Jupiter was not in Siṁha but in Dhanus (mean place) or Vṛiśchika (true place) he felt doubtful about the correctness of the equivalent proposed above.

It is rather unusual to find the position of Śukra mentioned in a date while it is quite common to find that of Jupiter given. But here the very fact of Jupiter's position being in Vṛiśchika or Dhanus has led me to interpret as I have done above, and the result justifies this interpretation.

142.—*KLISI.* No. 322-b—Miraj inscription of the Śilāhāra Vijayāditya:—

Saka-varshaṁ 1066 neya Rudhirōdgāri-saṁvatsarada Māgha-bahuḷa 14 Vaḍḍavārad=aṁdu Śivarātreya parvvaniṁittav=āgi.

Ś. 1066 current=Rudhirōdgārin. In this year, Māgha-ba 14 commenced at 32*gh.* 27*p.* after mean sunrise on **Thursday, 3rd February, A.D. 1144.** This, therefore, is the regular equivalent of the given date.

Kielhorn also recognised that Thursday night was the proper time for the Śivarātri (see his footnote 3 on p. 58 of the Appendix to *Ep. Ind.* Vol. VII); but he noted this date as irregular, because he was searching for a Saturday as the equivalent of *Vaḍḍavāra.*

143.—*KLISI.* No. 287—Narsāpūr inscription of the reign of the Kaḷachurya Sōvidēva:—

Sōvidēva-varshada 7 neya Vijaya-saṁvatsarada Pushya-sudha 13 Sōmavārad=aṁdu.

This corresponds to **Monday, 17th December, A.D. 1173.** On this day, the *tithi* Pushya-su 13 of Vijaya commenced

at ·9495 day after mean sunrise (*i.e.*, 1 hour 13 min. before mean sunrise on Tuesday).

144.—*KLISI.* No. 338—Gadag inscription of the reign of the Dēvagiri-Yādava Siṅghaṇa :—

Śakanṛipakāl-ākrānta-saṁvatsara-śatamgaḷu 1135 neya Āṅgirasa-saṁvatsarada Phālguṇa-śudhdha-bidige Śanaiśchara-vārad=aṁdu.

This corresponds to **Saturday, 23rd February, A.D. 1213** on which day Phālguna-su 2 of Āṅgirasa [=Ś. 1135 current] commenced at 24*gh.* 23*p.* after mean sunrise.

145.—*KLISI.* No. 423—Śravaṇa-Beḷgoḷa inscription (No. 130) recording private donations :—

Śaka-varsha 1118 neya Rākshasa-saṁvatsarada Jēshṭha-su 1 Bṛihavārad=andu.

This corresponds to **Thursday, 11th May, A.D. 1195,** on which day Jyēshṭha-su 1 of Rākshasa [=Ś. 1118 current] commenced from 30*gh.* 46*p.* after mean sunrise.

146.—*KLISI.* No. 431—Baḷagāṁve memorial tablet of the time of the Hoysala Vīra-Ballāḷa (Ballāḷa II) :—

'The seventeenth year of his reign, the Prabhava *saṁvatsara*; Sunday, the thirteenth day of the dark fortnight of Kārttika.' (*Mys. Inscr.*: 'the 10th day of the moon's decrease, Monday').

Prabhava=Ś. 1129. In this year, Kārttika-ba 13 commenced at 37*gh.* 25*p.* after mean sunrise on **Sunday, 18th November, A.D. 1207.** This therefore is the equivalent of the given date.

With the latter of the readings given above, the equivalent will be **Monday, 4th November, A.D. 1208** on which day Kārttika-ba 10 of the year following Prabhava commenced from 2*gh.* 42*p.* after mean sunrise.

147.—*KLISI.* No. 434—Harihar inscription of the Hoysala Narasiṁha II :—

Śaka-varshaṁ 1145 ne Svabhānu-saṁvatsarada Māgha-śuddha 11 Bṛihavārad=aṁdu.

This corresponds to **Thursday, 1st February, A.D. 1224** on which day Māgha-su 11 of Subhānu [=Ś. 1145] commenced at 51*gh.* 48*p.* after mean sunrise.

Another possible equivalent of the given date is **Saturday, 14th January, A.D. 1123** in the previous year; on that day, Māgha-su 11 ended at 54*gh.* 26*p.* after mean sunrise.

148.—*KLISI.* No. 577—Śrīkūrmam inscription of Vijayāditya II, descendant of the E. Chālukya Rājarāja I:—

svasti śrī-Śāka-varshē śara-nidhi-śaśi-bhūsammitē= [rkkē] Tulā-stē (-sthē) Rudrāhē Saumyavārē sitayuji.

Ś. 1195=A.D. 1273. In this year, su-8 of *lunar* Tulā or Āśvayuja commenced at 14*gh.* 52*p.* after mean sunrise on **Wednesday, 20th September, A.D. 1273.** This therefore is the equivalent of the given date.

149.—*KLISI.* No. 197—Heggere Hoysala inscription:—

'In the 18th year of Chālukya Vikrama, the month Jēshṭa, the 5th day of the moon's increase, Monday, at the *Saṅkramaṇa.*'

Chā. Vi. 18 current=Ś. 1015, and Ś. 1015*=1091 A.D. In this year Jyēshṭha-su 5 ended at 7*gh.* 30*p.* after mean sunrise on **Monday, 26th May, A.D. 1091**, on which day fell the Mithuna-saṅkrānti also. This therefore is the regular equivalent of the given date.

Kielhorn also has noted that the above day would regularly correspond to the given date; but inasmuch as this day occurs in Ś. 1013 or Chā. Vi. 16 current, and not in Chā. Vi. 18, he has marked the date as irregular.

It seems to me that this is but another instance of a Śaka year, the difference between which and the corresponding Ky. year is 3177 and not 3179 (see § 24 above). It is also possible that a slight irregularity might have been caused by a mistake between the southern luni-solar Jovian year Bhāva [=Ś. 1016 or Chā. Vi. 18] and the northern luni-solar Bhāva [=Ś. 1013 or Chā. Vi. 15].

150.—*KLISI.* No. 174—Baḷagāṁve inscription of the W. Chālukya (Sōmēśvara II) Bhuvanaikamalla :—

Śaka-varsha 993 neya Virōdhikṛit-saṁvatsarada Pushya-suddha 1 Sōmavārad=amdin=uttarāyaṇa-saṁkrānti-parbba-nimittadiṁ.

Ś. 993=Rudhirōdgārin. Kielhorn gives 25th December, A.D. 1071 as the equivalent with the remark that the weekday was a Sunday and not a Monday.

In this year, su-1 of the *solar* month Pushya (=Makara or Tai) ended at 8*gh.* 16*p.* on **Monday, 23rd January, A.D. 1072** on which day the Kumbha-saṅkrānti also took place at 11*gh.* 47*p.* after mean sunrise (S.S.).

This seems to be a better equivalent than that proposed by Kielhorn.

151.—*KLISI.* No. 202—Baḷagāṁve inscription of the W. Chālukya (Vikramāditya VI) Tribhuvanamalla :—

śrīmach-Chāḷukya-Vikrama-kālada 22 neya Bahudhānya-saṁvatsarada Pushyad=amāvāsyey=Ādityavāram=uttarāyaṇa-saṁkrānti-vyatīpātad=aṁdu.

Bahudhānya=Ś. 1020. Kielhorn gives 25th December, A.D. 1098 as the equivalent and notes that the weekday was Saturday and not Sunday.

For the *solar* month Pushya (=Makara or Tai) of this year, the *amāvāsyā* began at 8*gh.* 19*p.* after mean sunrise on **Sunday, 23rd January, A.D. 1099**, while the Kumbha-saṅkrānti took place on the same day at 10*gh.* 58*p.* after mean sunrise (S.S.). This day seems to me a better equivalent of the given date than that proposed by Kielhorn.

152.—*KLISI.* No. 474—Chitradurg (Chitaldurg) plates of Harihara II :—

Ṛishi-bhū-vahni-chandrē tu gaṇitē Dhāt [ṛi]-vatsarē ।
Māgha-māsē śukla-pakshē paurṇamāsyāṁ mahātithau ॥
nakshatrē pitṛi-ḍaivatyē Bhānuvārēṇa saṁyutē ।

[Ś. 1317†=Dhātṛi]. Kielhorn gives Sunday, 14th January, A.D. 1397 as the equivalent remarking that the

tithi which ended on that day was the first of the dark half and not the full-moon *tithi*.

In this year, the *solar* month Māgha (=Kumbha or Māśi) was current from 25th January to 24th February; in this month su-15 commenced at 28*gh*. 34*p*. after mean sunrise on **Sunday, 11th February, A.D. 1397**; on this day the *nakshatra* Maghā also commenced at 3*gh*. 54*p*. after mean sunrise. This day seems to be a better equivalent of the given date than that proposed by Kielhorn.

153.—*KLISI*. No. 579-b—Śrīkūrmam inscription of the E. Chālukya Viśvanātha:—

śrī-Śaka-varshaṁbulu 1231 gunēṁ[ṭṭi] śrī-Jaga[nn] ātha-dēvara vijaya-rājya-saṁ(vva)tsaraṁbulu [3] gu śrāhi Kanyā-śukla 5 yu Guruvāramuna.

Ś. 1231 current=A.D. 1308. In this year *śukla-pañchamī* of the *lunar* Kanyā or Bhādrapada ended at 16*gh*. 0*p*. on **Thursday, 22nd August, A.D. 1308.** This therefore is the equivalent of the given date. (It may be observed that the tropical Kanyā-saṅkrānti had taken place about 2 days before this date, and that the sidereal *saṅkrānti* took place 6 days after this date).

154.—*KLISI*. No. 590-b—Amarāvatī inscription of Kēta II:—

Śāk-ābdē yuga-kh-ēṁdu-rūpa-gaṇitē Māghē daśamyāṁ tithau śuklāyāṁ Guruvāsarē.

Ś. 1104=A.D. 1182. For this year, the above date is irregular for the lunar month Māgha; but, for the *solar* month Māgha (=Kumbha or Māśi) the date works out correctly, as in this month su-10 commenced at 4*gh*. 34*p*. after mean sunrise on **Thursday, 3rd February, A.D. 1183.** This seems to be the day intended by the inscription.

155.—*KLISI*. No. 99—Dēvī-Hosūr inscription of the time of the Rāshṭrakūṭa Krishṇarāja III:—

Śaka-varsha 884 Dundubhi-saṁvatsar-āntarggata-Pausha-suddha-trayōdasi Ādityavāram=uttarāyaṇa-saṁkrāntiy-andu.

Ś. 884 current=Dundubhi. In this year, Pausha-su 13 ended at 45*gh.* 30*p.* after mean sunrise on **Sunday, 22nd December, A.D. 961**, while the Makara-saṅkrānti according to the Brahma Siddhānta took place on the same day at 16*gh.* 22*p.* after mean sunrise. This therefore is the regular equivalent of the given date.

Kielhorn, too, has given the same equivalent but with the remark that the *uttarāyaṇa-saṅkrānti* took place on the next day, Monday.

156.—*KLISI.* No. 401—Sindigere inscription; date of the time of the Hoysala Vishṇuvardhana :—

'In the Śaka year 1060; the year Paiṅgaḷa, the month Pushya, the 10th day of the moon's increase, *uttarāyaṇa-saṅkrānti.*'

Ś. 1060 current=Piṅgala. In this year, su-10 of the lunar Pushya ended at 54*gh.* 0*p.* after mean sunrise on **Thursday, 23rd December, A.D. 1137**, on which day the Makara-saṅkrānti, too, according to the Brahma Siddhānta, took place at about 40*gh.* 30*p.* after mean sunrise.

In the *solar* month Pushya (=Makara or Tai), su-10 ended at 36*gh.* 49*p.* after mean sunrise on **Saturday, 22nd January, A.D. 1138**, on which day the Kumbha-saṅkrānti according to the Brahma Siddhānta occurred at 15*gh.* 8*p.* after mean sunrise.

One of these two days is the equivalent of the given date.

157.—*KLISI.* No. 435—Śravaṇa-Belgoḷa inscription (No. 81) of the reign of the Hoysala Narasiṁha II :—

Khara-saṁvatsarada Pushya-śuddha uttarāyaṇa-saṁkrānti pāḍi-diva Briha-vārad=andu.

[Khara=Ś. 1153.] Kielhorn gives as equivalent 26th December, A.D. 1231, noting that the weekday was Friday and not Thursday. As, however, Pushya-su 1 commenced at 10*gh.* 39*p.* after mean sunrise on **Thursday, 25th December,** and the Makara-saṅkrānti according to the Brahma Siddhānta occurred at about 3*gh.* 8*p.* after mean sunrise, there is no doubt that the correct equivalent is **Thursday, 25th December, A.D. 1231.**

As Bṛihavāra may be interpreted as Saturday also, a possible equivalent of the above date is furnished by the *solar* month Pushya (=Makara or Tai) of this year. In this solar month, su-1 ended at the very end of **Saturday, 24th January, A.D. 1232,** (in fact, 16*p.* before true local sunrise on 25th January for Maisūr) on which day the Kumbha-saṅkrānti also took place at 35*gh.* 50*p.* (S.S.) or 34*gh.* 6*p.* (A.S.) after mean sunrise.

158.—*KLISI.* No. 574—Chellūr (now British Museum) plates of the reign of the E. Chālukya Kulōttuṅga-Chōḍa II :—

Śāk-ābdānāṁ pramāṇē rasa-viśikha-viyach-chaṁdra-saṁkhyāṁ prayātē.....s-Ārdra-rkshē pūrvva-ma(pa)-kshē vishuvati su-tithā (thau).

Ś. 1056=A.D. 1134. In the Chaitra at the end of this solar year, the Mēsha-saṅkrānti according to the Brahma Siddhānta occurred at 34*gh.* 9*p.* after mean sunrise on **Saturday, 23rd March, A.D. 1135;** the *nakshatra* Ārdrā ended on this day according to the equal-space system at 36*gh.* 25*p.* and according to the unequal-space systems, earlier in the day; the *tithi* that ended on this day was Chaitra-su-saptamī.

This therefore is the regular equivalent of the given date.

[Messrs. Kielhorn, S. B. Dikshit and Fleet have all examined the above date and pronounced it irregular. And as the date happens to work out regularly for Ś. 1065, Kielhorn has suggested that *rasa-viśikha* in the inscription is a mistake for *viśikha-rasa* and that the equivalent of the date is 24th March, A.D. 1143.]

159.—*KLISI.* No. 815—Giḍangil inscription of the reign of Kulōttuṅga-Chōḷa III :—

'In the third year.....on the day of Aśvinī which corresponded to a Wednesday which was the twenty-seventh solar day of the month of Siṁha.'

The accession of Kulōttuṅga-Chōḷa III took place, as Kielhorn informs us in note 6, p. 131, *Ep. Ind.* Vol. VII,

App., between the 8th June and the 8th July of A.D. 1178. The third year current or second year of his reign therefore corresponds to A.D. 1179—1180. In this period, the Siṁha-saṅkrānti according to the Brahma Siddhānta took place on 27th July A.D. 1179, (at 27*gh.* 29*p.* after mean sunrise). The 27th day of Siṁha is therefore the 22nd August, which was a Wednesday and on which day the *nakshatra* Aśvinī commenced at 17*gh.* 24*p.* after mean sunrise. This **Wednesday, 22nd August, A.D. 1179** is therefore the equivalent of the given date.

160.—*KLISI.* No. 178—Kādarōḷi inscription of the W. Chālukya Sōmēśvara II Bhuvanaikamalla :—

Saka-varsha 997 neya Rākshasa-saṁvatsarada Pushyada puṇṇame Ādityavāra uttarāyaṇa-śaṁ (saṅ)krānti-vyatīpātad =andu.

Ś. 997=Rākshasa. For this year, Kielhorn gives 25th December, A.D. 1075 as the equivalent with the note that the weekday was Friday and not Sunday.

In the same year, the *pūrṇimā* of solar Pushya or Makara (Tai) ended at 2*gh.* 24*p.* after mean sunrise on **Sunday, 24th January, A.D. 1076.** The [*Kumbha-*]*saṅkrānti* took place at 12*gh.* 51*p.* (A.S.) or 13*gh.* 52*p.* (S.S.) after mean sunrise of the preceding Saturday and was perhaps (see § 28 above) associated with Sunday. This Sunday, 24th January, A.D. 1076 seems therefore to be the day intended by the inscription.

161.—*KLISI.* No. 422—Baḷagāṁve inscription of the Hoysaḷa Vīra-Ballāḷa (Ballāḷa II) :—

Saka-nṛipa-saṁvachchharam=ārabhya śatādhika-sahasrōpari sapta-dacha(śa)mē Ā[na*]nda-saṁvachchharē Mārggaśirsh-āmāvāsyāyāṁ Sōmavārē vyatīpāta-yōgē.

Ś. 1117 current=Ānanda. In this year, the *amāvāsyā* at the beginning of Mārgaśirsha ended at 41*gh.* 1*p.* after mean sunrise on Monday, 14th November, A.D. 1194. As the *yōga* Vyatīpāta cannot however occur in association with Mārgaśirsha-amāvāsyā, the phrase 'Vyatīpāta-yōgē' therefore

of the inscription may perhaps refer to the tropical Dhanus-saṅkrānti which took place on this day at *5gh. 24p.* after mean sunrise according to the Brahma Siddhānta. In any case, this **Monday, 14th November, A.D. 1194** is the day intended by the inscription.

162.—*KLISI.* No. 153—Bēlūr inscription of the reign of the W. Chālukya Jayasiṁha II Jagadēkamalla :—

Sakanṛipakāḷ - ātīta - saṁvatsara - śataṁga 944 neya Duṁdubhi-saṁvatsarad=uttarāyaṇa-saṁkrāntiyuṁ Vyatīpātamum=Ādityavārad=a[m*]du.

Ś. 944=Dundubhi. In this year, the Makara-saṅkrānti according to the Brahma Siddhānta occurred at about *2gh. 50p.* after mean sunrise on **Sunday, 23rd December, A.D. 1022.** This therefore seems to be the day intended by the inscription.

163.—*KLISI.* No. 814—Tirumāṇikuḷi inscription of King Parakēsarivarman *alias* the *Tribuvanachakravartin*, the glorious Kulōttuṅga-Chōḷadēva (the Third) :—

'In the third year.....on the day of Aśvinī, which corresponded to a Monday and to the fifth *tithi* of the second fortnight of the month of Siṁha.'

Kielhorn gives the 12th August, A.D. 1180 as the equivalent with the note that the weekday was Tuesday and not Monday. The day intended by the inscription, however is, without doubt, **Monday, 11th August, A.D. 1180.** On this day, the *tithi* ba-5 of Siṁha began at 8 hours and the *nakshatra* Aśvinī at 3h. 56m. after mean sunrise according to Kielhorn (note 6, p. 171, *Ep. Ind.* VII).

B :—Following Years.

164.—*KLISI.* No. 361—Chauḍadāmpur inscription ; date of the time of the Dēvagiri-Yādava Kanhara (Kṛishṇa) :—

Kanharadēva-varshada Siddhārthi-saṁvatsarada Chaitra-bahuḷa 15 Śō sūryyagrahaṇada samaya.

Siddhārthin=Ś. 1181 or A.D. 1259. In the year following this Siddhārthin, there took place a solar eclipse

visible in India on Chaitra-amāvāsyā, *i.e.*, **Monday, 12th April, A.D. 1260.** This is the equivalent of the given date.

165.—*KLISI.* No. 328—Saṁgamnēr plates of the Yādava Bhillama II :—

Śakanṛipakāl-ātīta-saṁvatsara-śatēshu navasu dvāviṁśaty-adhikēshu.....Śārvvarī-saṁvatsarīya-Bhādrapad-āmāvāsyāyām..... ....sūrya-grahaṇē.

Śārvarin=Ś. 922 or A.D. 1000. In the year following, there was a solar eclipse, visible in India, on the *āmāvāsyā* at the end of Bhādrapada—*i.e.*, **Saturday, 20th September, A.D. 1001.** This is the regular equivalent of the given date.

166.—*KLISI.* No. 297—Baḷagāṁve inscription of the 3rd year of the reign of the Kaḷachurya Āhavamalla :—

Āhavamalladēva-varshada 3 neya Plava-saṁvatsarada Śrāvaṇa-bahula 12 (or 13 ?) [Ādi?]vāra saṁkramaṇa-vyatīpātad=aṁdu.

Plava=Ś. 1103 or A.D. 1181. In the year following this Plava, Śrāvaṇa-ba 12 was current at sunrise and for nearly the whole day on **Wednesday, 28th July, A.D. 1182.** The Siṁha-saṅkranti took place on that day at 18 *ghaṭikās* 32 *palas* and 10 *ghaṭikās* 56 *palas* respectively after mean sunrise according to the Sūrya and Ārya Siddhāntas.

So, the regular equivalent of the date given above is Wednesday, 28th July, A.D. 1182. The conjectural reading of 'Ādi' before 'vāra' is wrong and should be corrected to 'Budha'; similarly the query 'or 13 ?' should be deleted.

[K.—Plava=Ś. 1103: Sunday, 9th August, A.D. 1181; the 12th *tithi* ended and the 13th commenced 9m. after mean sunrise; but there was no *Saṁkrānti* on this day.]

167.—*KLISI.* No. 218—Koḍikop inscription of the W. Chālukya (Vikramāditya VI) Tribhuvanamalla :—

śrīmat-Chālukya-Vikrama-kālada 45 neya Subhakṛit-saṁvachchharada Chaitra-suddha 8 Sōmavāra uttarāyaṇa-saṁkrāntiy-aṁdu.

Śubhakṛit=Chā. Vi. 46 (Ś. 1044) and not Chā. Vi. 45 (Ś. 1043 or Ś. 1042). In the year following this Śubhakṛit, Chaitra-su 8 commenced at 14*gh.* 14*p.* after mean sunrise on **Monday, 24th March, A.D. 1124.** The Mēsha-saṅkrānti too, which occurred at 49*gh.* 31*p.* (S.S.) or 46*gh.* 40*p.* (A.S.) after mean sunrise of the preceding Sunday would naturally fall—*i.e.*, be observed, on the following day, Monday.

Monday, 24th March, A.D. 1124 is therefore the regular equivalent of the given date.

[K.—The date is intrinsically wrong and of course irregular for both Śubhakṛit=Ś. 1044 and Ś. 1042.]

168.—*KLISI.* No. 108—Tanjore plates of the W. Gaṅga Arivarman (Harivarman) :—

Sakā-kālē navōttara-shashṭir=ēkaśata-gatēshu Prabhava-saṁvatsara-ābhyantarē Shā (Phā) lguṇ-āmāvāsō (syā)-Bhṛigu Rēvati-nakshatrē Vṛiddhi-yōgē Vṛishabha-lagnē.

Ś. 169=Prabhava by the southern luni-solar system ; in the year following, Phālguna-amāvāsyā ended at 9*gh.* 49*p.* after mean sunrise on **Friday, 2nd March, A.D. 249** ; Rēvatī began on this day at about 16*gh.* 53*p.* after mean sunrise and was therefore current at the time of Vṛishabha-lagna (about 3 A.M.—5 A.M. before sunrise of Saturday, 3rd March). The *yōgas* current on this day were Brahman and Indra and not Vṛiddhi, which can never occur on the same day as Phālguna-amāvāsyā. It is not therefore unlikely that the expression *vṛiddhi-yōga* is here used in the sense of *śubha-yōga, puṇya-yōga*, as the word 'Vṛiddhi', too, is well-known as an auspicious word ; compare the *Mahābhāshya* on Pāṇini I. 1. 1.

169.—*KLISI.* No. 9—Haidarābād plates of the W. Chālukya Satyāśraya Pulakēśin II :—

ātmanah pravarddhamāna-rājyābhishēka-saṁvatsarē tṛitīyē Śaka-nṛipati-saṁvatsara-śatēshu chatustrimś-ādhikēshu pañchasv=atītēshu Bhādrapad-āmāvāsyāyāṁ sūryya-grahaṇa-nimittam.

Kielhorn gives the 2nd August, A.D. 612 as the equivalent, with the note that there occurred a solar eclipse on that day which was not visible in India.

It seems to me better to make use of the following year as in that year there occurred a solar eclipse visible in India on the *amāvāsyā* at the beginning of Bhādrapada which corresponded to Monday, **23rd July, A.D. 613.** The date in the inscription does not cite the weekday, however, so that we cannot now determine which of the above two days was intended by the inscription.

170.—*KLISI.* No. 110—Harihar plates of the W. Gaṅga Vishṇugōpa :—

Saga .....[nayana-gi.....neya?] Śādhāraṇa-śammachhchharāda Phalguṇa-mā-amavāśe Adivārad=andu.

This date is given by Kielhorn with the heading 'Ś. 272 (?)'. Ś. 272=Sādhāraṇa by the southern luni-solar system. In the year following, the *amāvāsyā* at the beginning of Phālguna ended at 26*gh.* 9*p.* after mean sunrise on **Sunday, 2nd February, A.D. 352,** while the *amāvāsyā* at the end of Phālguna commenced at 55*gh.* 35*p.* after mean sunrise on **Sunday, 1st March, A.D. 352.** One of these two days is the equivalent of the given date.

171.—*KLISI.* No. 127—Sūḍi plates of the W. Gaṅga Būtuga II :—

Saka-vari[sh]ēshu shashṭyuttar-āshṭa[śa]tēshu atikrāṁtēshu Vikāni(ri)-saṁvatsara-Kāttika-Nandīsvarasuklapakshaḥ ashṭamyāṁ Ādityavārē.

By the southern luni-solar system, the year Vikārin corresponds to Ś. 860†. In the year following this Vikārin, Kārttika-su 8 ended at 39*gh.* 16*p.* after mean sunrise on **Sunday, 11th October, A.D. 940.** This day therefore is the regular equivalent of the given date.

172.—*KLISI.* No. 158—Maṇṭūr inscription of the W. Chālukya Jayasiṁha II Jagadēkamalla :—

Saka-varsha 962 neya Vikrava (ma)—saṁvatsarada śrāheya Mārggaśira-śuddha 5 Ādityavārad=aṁdu.

Vikrama=Ś. 962 or A.D. 1040. In the year following this Vikrama, Mārgaśira-su 5 ended at 39*gh.* 4*p.* after mean sunrise on **Sunday, 1st November, A.D. 1041**; this therefore is the equivalent of the given date.

173.—*KLISI.* No. 172—Dāvaṇgere inscription of the W. Chālukya (Sōmēśvara I) Trailōkyamalla :—

Saka-varsha 988 neya Parābhava-saṁvatsarada Bhādrapadad-amāvāsye Maṁgaḷavāra sūryyagrahaṇad=andu.

Parābhava=Ś. 988 or A.D. 1066. In the following year, Bhādrapada-amāvāsyā ended at 28*gh.* 26*p.* after mean sunrise on **Tuesday, 11th September, A.D. 1067.** There was however no solar eclipse on that day; but a slight mistake of + ·84 in calculation would be enough to have made one predict a solar eclipse towards the evening on that day.

In the year Parābhava [=Ś. 988] there *was* a solar eclipse visible in India on Bhādrapada-amāvāsyā, corresponding to 22nd September, A.D. 1066; but the weekday in this case was Friday and not Tuesday. In all likelihood, therefore, the day intended by the given date seems to be **Tuesday, 11th September, A.D. 1067.**

174.—*KLISI.* No. 400—Śravaṇa-Belgoḷa inscription recording the date of the death of Śāntaladēvī, queen of the Hoysala Vishṇuvardhana :—

Saka-varushaṁ 1050 mūṟeneya Virōdhikṛit-saṁvatsarada Chaitra-suddha-pañchamī Sōmavārad=andu.

Ś. 1053=Virōdhikṛit. In the year following, su-5 of Chaitra at the end ended at 25*gh.* 27*p.* after mean sunrise on **Monday, 13th March, A.D. 1133.** This therefore is the day intended by the inscription.

175.—*KLISI.* No. 276—Baḷagāṁve memorial tablet of the reign of the Kaḷachurya Bijjaṇa :—

'The second year of his reign, the Bahudhānya *saṁvatsara*; Tuesday, the fourteenth day of the dark fortnight of Chaitra' (*Mys. Inscr.*: 'the month Kārttika, the last day of the moon's decrease, new-moon day, Tuesday').

Bahudhānya=Ś. 1080 or A.D. 1158. In the following year the *amāvāsyā* at the beginning of Kārttika ended at 7*gh.* 19*p.* on **Tuesday, 13th October, A.D. 1159**, while that at the end of Kārttika commenced at 46*gh.* 10*p.* after mean sunrise on **Tuesday, 10th November, A.D. 1159**. One of these two days is the equivalent of the given date.

In neither of the above two years—Ś. 1080, Ś. 1081—did Chaitra-ba 14 fall on a Tuesday; but, in A.D. 1157, the year previous to Bahudhānya, Chaitra-ba 14 commenced at 21*gh.* 17*p.* after mean sunrise on **Tuesday, 9th April, A.D. 1157.** This therefore would be the equivalent of the date with the first of the readings given above.

176.—*KLISI.* No. 295—Baḷagāṁve memorial tablet of the time of the Kaḷachurya Āhavamalla :—

The Śārvari *samvatsara*; Sunday, the first day of the bright fortnight of Kārttika (*Mys. Inscr.* 'of the moon's decrease').

Śārvarin=Ś. 1102 or A.D. 1180. In the following year, Kārttika-su 1 ended at 8*gh.* 15*p.* after mean sunrise on **Sunday, 11th October, A.D. 1181.** This therefore is the regular equivalent of the given date. In this year, Kārttika-ba 1 ended on Saturday, 25th October, 1181, at 44*gh.* 35*p.* after mean sunrise; evidently therefore, the first of the above two readings is preferable as it yields correct results.

177.—*KLISI.* No. 298-b—Haralahaḷḷi inscription of the reign of the Kaḷachurya Āhavamalla :—

'Saka 1110, the Plavaṁga *saṁvatsara*; Thursday, the thirteenth day of the bright fortnight of Phālguna.'

Plavaṅga=Ś. 1100 current or A.D. 1187; in the following year, Phālguna-su 13 ended at 36*gh.* 45*p.* after mean sunrise on **Thursday, 2nd March, A.D. 1189.** This therefore is the regular equivalent of the given date.

178.—*KLISI.* No. 305. Bhādāna plates of the Śilāra Aparājitadēvarāja :—

Sakanṛipakālātīta-saṁvatsara-satēshu navasu ēkōna-viṁśaty-uttarēshu pravarttamāna-Hēmalamba-saṁvatsarānta Āshāḍha-vahula-chatusyāṁ ankatō=pi samvat 919

Āshāḍha-vadi 4 saṁjāta-dakshiṇāyana-Karkkaṭa-sa[ṁ]-krānti-parvvaṇi.

Kielhorn corrects the incorrect word *chatusyām* in the inscription to *chaturthyām*; and after so correcting notes that 'the date is not quite regular', but that 'the day intended may be the 25th or the 26th June, A.D. 997'.

It seems to me to be preferable to look on *chatusyām* as a *lapsus calami* for *chaturdasyām* (*chaturdaśyām*) and to emend in accordance therewith 'vadi 4' to 'vadi 14'. With this correction, the date works out quite satisfactorily for the year following Hēmalamba [=Ś. 919]. For, in this year, the Karkaṭa-saṅkrānti took place at 13*gh.* 20*p.* (S.S.) or 7*gh.* 2*p.* (A.S.) after mean sunrise on Saturday, **25th June, A.D. 998** while Āshāḍha-ba 14 ended on this day at 44*gh.* 42*p.* after mean sunrise. Perhaps this is the day intended by the inscription.

179.—*KLISI.* No. 308—Kalyāṇ inscription of the Śilāra *Mahāmaṇḍalēśvara* Māṁvāṇirājadēva:—

'Śaka-saṁvat 982 Śrā [vaṇa ?]-śuddha 9 Sukrē'.

Ś. 982=A.D. 1060=Śārvarin by the southern luni-solar system. In the following year, Śrāvaṇa-su 9 commenced at 39*gh.* 36*p.* after mean sunrise on **Friday, 27th July, A.D. 1061.** This therefore is the regular equivalent of the given date.

180.—*KLISI.* No. 370—Ṭhāṇā plates of the reign of the Dēvagiri-Yādava Rāmachandra:—

Śālivāhana-śakē 1194 Aṅgirā-nāma-saṁvatsarē Āśvina-śuddha 5 Ravau.

This corresponds regularly to **Sunday, 17th September, A.D. 1273,** on which day Āsvina-su 5 of the year following Śārvarin (=Ś. 1194) commenced at 0*gh.* 39*p.* after mean sunrise.

181.—*KLISI.* No. 374—Baḷagāṁve memorial tablet of the time of the Dēvagiri-Yādava Rāmachandra:—

"The twelfth or thirteenth year of his reign, the Chitrabhānu *saṁvatsara*; Sunday, the fifteenth day of the bright fortnight of Māgha or perhaps Mārgaśīrsha.'

Chitrabhānu=Ś. 1204 or A.D. 1282. In the following year, Mārgaśīrsha-su 15 commenced at 7*gh.* 22*p.* after mean sunrise on **Sunday, 5th December, A.D. 1283.** This therefore is the regular equivalent of the given date for the month of Mārgaśīrsha. For the month Māgha, the date does not work out satisfactorily in either the Chaitrādi or the Phālgunādi Chitrabhānu.

182.—*KLISI.* No. 375—Sorab memorial tablet of the reign of the Dēvagiri-Yādava Rāmachandra :—

Rāmachandradēva-vijayarājy-ōdayada 12 Svabhānu-saṁvatsarada Phālguṇa-su 5 Vaḍḍavārad=aṁdu.

This corresponds regularly to **Saturday, 10th February A.D. 1285,** on which day Phālguna-su 5 of the year following Svabhānu [=Ś. 1205] commenced at 28*gh.* 9*p.* after mean sunrise.

183.—*KLISI.* No. 379—Ṭhāṇā plates of the reign of the Dēvagiri-Yādava Rāmachandra :—

Śālivāhana-śakē 1212 Virōdhi-saṁvatsarē Vaiśākha-śuddha-paurṇamasyaṁ Bhaumē.

This corresponds regularly to **Tuesday, 25th April, A.D. 1290** on which day Vaiśākha-paurṇamāsī of the year following Virōdhin [=Ś. 1212 current] commenced at 8*gh.* 1*p.* after mean sunrise.

184.—*KLISI.* No. 454—Bādāmi inscription of Harihara I :—

Śaka-varusha 1261 neya Vikrama-saṁvatsarada Chaitra-su 1 Gu.

This corresponds regularly to **Thursday, 7th March, A.D. 1342,** on which day Chaitra-su 1 of the year following Vikrama [=Ś. 1261†] commenced at 37*gh.* 24*p.* after mean sunrise.

185.—*KLISI*—No. 479-b. Vēppambaṭṭu inscription of Bukka II :—

'Thursday, the twelfth lunar day of the bright half of Vaiśākha of the Pārthiva year'.

This regularly corresponds to **Thursday, 29th April, A.D. 1406**, on which day Vaiśākha-su 12 of the year following Pārthiva [=Ś. 1327] commenced at 3*gh.* 30*p.* after mean sunrise.

186.—*KLISI.* No. 535—Śattuvāchchēri inscription of the reign of Śrīraṅgarāya II :—

'On Wednesday, the thirteenth lunar day of the dark half of the month of Makara of the Yuva-*saṁvatsara* which was current after the Śaka year 1497.'

Ś. 1497=Yuvan. In the following year, ba-13 of Makara, *i.e.*, Pushya-ba 13 ended at 48*gh.* 46*p.* after mean sunrise on **Wednesday, 16th January, A.D. 1577**. This therefore is the regular equivalent of the given date.

187.—*KLISI.* No. 743—Koḷagāla inscription of the reign of Rājādhirāja I :—

[35]āvadu [Sa] kha-variśam 975 [ne] ya Vijayōśchaiva-saṁvatsara[da] Jēshṭa-māsada sukla-pakshada tra[yō] daśi Ādityavārad=andu.

This corresponds regularly to **Sunday, 22nd May, A.D. 1054** on which day Jyēshṭha-su 13 of the year following Vijaya [=Ś. 975] expired at 13*gh.* 58*p.* after mean sunrise.

188.—*KLISI.* No. 829—Nellore inscription of the reign of Kulōttuṅga-Chōḷa III :—

'In the year Piṅgala (which corresponded to) the Śaka year one thousand one hundred and nineteen.....on the day of Rēvatī and a Friday, which was the fifteenth solar day of the month of Vṛiśchika.'

Piṅgala=Ś. 1119; for this year, Kielhorn gives Friday 21st November A.D. 1197 as the equivalent but notes that this was the 25th day and not the 15th day of the month of Vṛiśchika.

I would point out that in the year following this Piṅgala, *i.e.*, in Ś. 1120, the *nakshatra* Rēvatī was current up to, and expired at, 34*gh.* 31*p.* after mean sunrise on **11th November, A.D. 1198**, which was the 15th day of Vṛiśchika; the weekday, however, was **Wednesday** and not Friday.

It is possible that this latter is the day intended by the inscription.

189.—*KLISI.* No. 430—Baḷagāṁve memorial tablet of the reign of the Hoysala Vīra-Ballāḷa (Ballāḷa II) :—

'The fifteenth year of his reign; the Krōdhana *saṁvatsara*, Monday, the eleventh day of the bright fortnight of Chaitra.'

Krōdhana=Ś. 1127; the date is irregular for this year. In the following year, su-11 of the Chaitra at the end, ended at about 26 minutes[1] after mean sunrise on **Monday, 12th March, A.D. 1207.** This therefore is the equivalent of the given date.

C:—Previous Years.

190.—*KLISI.* No. 479-a—Vēppambaṭṭu inscription of the time of Bukka II of Vijayanagar :—

'On Thursday, the new-moon day of the dark half of Jyaishṭha of the Vyaya year which follows the Pārthiva year (and) which was current after the Śaka year 132 [8]'.

Ś. 1328=Vyaya; for this year the date is irregular; for the previous year, however [=Ś. 1327], Jyēshṭha-amāvāsyā ended at 14*gh.* 31*p.* after mean sunrise on **Thursday, 28th May, A.D. 1405.** This is perhaps the day intended by the inscription.

191.—*KLISI.* No. 170—Chillūr-Baḍṇi inscription of the W. Chālukya Sōmēśvara I:—

Sakanṛipakāl-ātīta-saṁvatsara-sa(śa)taṁga[ḷ*] 984 neya [Śu]bhakritu-saṁvatsarada Pauśya-suddha-dasami Ādityavāram=uttarāyaṇa-saṅkrānti-vyatīpātad=andu.

Ś. 984=Śubhakṛit. In the year preceding, Pushya-su 10 commenced at 50*gh.* 56*p.* after mean sunrise on **Sunday, 23rd December, A.D. 1061**; on that day, too, took place the Makara-saṅkrānti at 7*gh.* 6*p.* after mean sunrise according

[1] That is, allowing about 10 minutes for the interval by which true local sunrise preceded mean sunrise, about 36 minutes after true local sunrise.

to the Brahma Siddhānta. This Sunday, 23rd December, A.D. 1061 is therefore the day intended by the inscription.

192.—*KLISI.* No. 2—Aḷtēm plates of the Early Chālukya Pulakēśin I :—

Śaka-nṛip - ābdēshv - ēkādaś - ōttarēshu chatuśśatēshu vyatītēshu Vibhava-saṁvatsarē pravarttamānē Vaiśakhō-dita-pūrṇṇa-puṇya-divasē Rahō (hau) vidhau (dhōr=) maṇḍalam ślēshṭe.

Kielhorn gives 12th April, A.D. 488 as the equivalent with the note that the lunar eclipse on that day was not visible in India.

In my opinion, it is more likely that the corresponding day in the immediately previous year—*i.e.*, Ś. 410 current, is intended here; for on that day, [Thursday] **23rd April, A.D. 487** there took place a lunar eclipse which *was* visible in India.

193.—*KLISI.* No. 145—Tāḷgund inscription of the reign of the W. Chālukya Tailapa Āhavamalla (Taila II) :—

'Śaka 919, the Hēmalambi *saṁvatsara*, Sunday, the fifth day of the bright fortnight of Āśvayuja.'

This date works out well for the previous year; for in Ś. 919 current, Āśvayuja-su 5 ended at 33*gh.* 47*p.* after mean sunrise on **Sunday, 20th September, A.D. 996.** This therefore seems to be the date intended by the inscription.

194.—*KLISI.* No. 802—Tirumalavāḍi inscription of the reign of King Parakēsarivarman *alias* the *Tribhuvana-chakravartin* Vikrama-Chōḷadēva :—

"In the tenth year (of his reign, in) the month Śittirai, on a day which corresponded to (the day of) Hasta, (on) the thirteenth *tithi* of the fortnight of the auspicious waxing moon."

[Kielhorn suggests Sunday, 15th April or Saturday, 14th April, A.D. 1128 as the equivalent with a note that the inscription cites incorrectly either the *nakshatra* or the week-day.]

On the supposition that Vikrama-Chōḷa's reign began in A.D. 1118 (see *Ep. Ind.* VII, p. 5), the tenth year of his reign would correspond to A.D. 1127 (see § 25 above). In this year, according to the Brahma Siddhānta, su-5 of Śittirai began at 5*gh.* 49*p.*, and the *nakshatra* Hasta (by the unequal space system of the Brahma Siddhānta) at 54*gh.* 32*p.*, after mean sunrise on **Sunday, 27th March, A.D. 1127.** This therefore seems to be the day intended by the inscription.

195.—*KLISI.* No. 162—Baḷagāṁve inscription of the W. Chāḷukya (Sōmēśvara I) Trailōkyamalla:—

Śaka-varsha 970 neya Sarvvadhāri-saṁvatsarada Jyēshṭha-śuddha-trayōdaśi Ādityavārad=andu.

Sarvadhārin=Ś. 970. For the previous year, (Ś. 970 current), the date works out correctly, as in this year Jyēshṭha-su 13 ended at 26*gh.* 36*p.* after mean sunrise on **Sunday, 10th May, A.D. 1047.** This therefore seems to be the day intended by the inscription.

196.—*KLISI.* No. 326-B.—Kōlhāpur inscription of the Śilāhāra Vīra-Bhōjadēva II:—

Śaka-nṛipa-kāḷad=ārabhya varshēshu chaturddaśōttara-śatādhika-sahasrēshu nivṛittēshu varttamāna-Paridhāvi-saṁvatsar-āṁtarggata-Āśvīja-śuddha-pratipadi Śukravārē.

Ś. 1114=Paridhāvin. In the year preceding, Āśvīja-su 1 commenced at 24*gh.* 24*p.* after mean sunrise on **Friday, 20th September, A.D. 1191.** This therefore is the equivalent of the given date.

197.—*KLISI.* No. 280—Managōḷi inscription of the reign of the Kaḷachurya *Mahārājādhirāja* Bijjala:—

Bijjaladēva-varshada 10 neya Parttiva-saṁvatsarada Mārggaśirad=amavāsye Ādityavāra sūryyagrahaṇa-byatīpāta-nimittadiṁ.

Pārthiva=Ś. 1087; and Kielhorn gives Sunday, 5th December, A.D. 1165 as the equivalent, noting that there was no solar eclipse on that day.

In the previous year, Ś. 1087 current, there took place a solar eclipse visible in India on the *amāvāsyā* at the

beginning of Mārggaśira, **16th November, A.D. 1164.** The week-day however was Monday and not Sunday ; I am of opinion that in all likelihood this was the day intended by the inscription.

198.—*KLISI.* No. 344—Munoḷḷi inscription of the reign of the Dēvagiri-Yādava Siṅghaṇa :—

Saka-varsha 1145 neya Chitrabhānu-saṁvatsarada Kārttika-suddha-puṇṇami Sōmavāra sōmagrahaṇa-byatīpātadalli.

Chitrabhānu=Ś. 1145 current. In this year there occurred a lunar eclipse visible in India on Kārttika-su-15—*i.e.*, on 21st October A.D. 1222; the weekday however was not Monday but Friday. Kielhorn, erroneously, gives Saturday, 22nd October A.D. 1222 as the date of the eclipse, and gives this as the equivalent of the given date.

In the previous year, too, there was a lunar eclipse visible in India on Kārttika-su 15—*i.e.*, on **1st November, A.D. 1221**; and the weekday in this case *was* **Monday.**

I am thinking that this latter day is more likely to be the day intended by the inscription than the former one although it must be noted that the *yōga* Vyatīpāta occurred in conjunction with the former and not the latter.

199.—*KLISI.* No. 348—Kōlhāpur inscription of the Dēvagiri-Yādava Siṅghaṇa :—

Śaka 1157 Manmatha-saṁvatsarē Śrāvaṇa-bahuḷa 30 Gurau.

This date, Kielhorn himself has noted, is irregular for the year Manmatha=Ś. 1157 ; but works out correctly for the previous year in which Śrāvaṇa-ba 30 ended at 45*gh.* 18*p.* after mean sunrise on **Thursday, 27th July, A.D. 1234.** I have no doubt that this is the day intended by the inscription.

200.—*KLISI.* No. 385—Sindigere inscription; date of the time of the Hoysala Ballāḷa I :—

'The Śaka year 1025, the year Svabhānu, the month

Kārttika, the 10th day of the moon's increase, Thursday.'

Svabhānu=Ś. 1025; for this year the date is irregular; but in the previous year (=Ś. 1025 current), Kārttika-su 10 ended at 4*gh.* 8*p.* after mean sunrise on **Thursday, 23rd October, A.D. 1102.** This therefore is the equivalent of the given date.

201.—*KLISI.* No. 428—Baḷagāṁve inscription of the reign of the Hoysala Vīra-Ballāḷa II:—

'The eleventh year of his reign; the Dundubhi *saṁvatsara*; Monday, the thirteenth day of the bright fortnight of Chaitra.'

Dundubhi=Ś. 1124. This date is irregular for this Dundubhi, but works out correctly for the previous year—Ś. 1124 current; in this year Chaitra-su 13 ended at 18*gh.* 49*p.* after mean sunrise on **Monday, 19th March, A.D. 1201,** which therefore is the equivalent of the given date.

202.—*KLISI.* No. 478—Śravaṇa-Beḷgoḷa inscription recording the date of the death of Harihararāya:—

Tāraṇa - saṁvatsarada Bhādrapada - bahuḷa-daśamiyū Sōmavāradalū.

This date, according to Mr. Rice, gives the date of death of Harihara II; Tāraṇa, therefore, corresponds to Ś. 1326.

The date works out correctly for the year previous to this Tāraṇa. In this previous year, Bhādrapada-ba 10 commenced at 13*gh.* 44*p.* after mean sunrise on **Monday, 10th September, A.D. 1403.** This therefore seems to be the day intended by the inscription.

D:—Northern Luni-solar Years.

203.—*KLISI.* No. 152—Baḷagāṁve inscription of the reign of the W. Chālukya Jayasiṁha II Jagadēkamalla:—

Śaka-varsha 941 neya Siddhārthi-saṁvatsarada Pushya-śuddha-bidige Ādityavārad=andin=uttarāyaṇa-saṁkrāntiya parbba-nimittadiṁ.

Ś. 941*=A.D. 1017=Siddhārthin by the northern luni-solar system. In this year Pushya-su 2 commenced at

13*gh.* 53*p.* after mean sunrise on **Sunday, 22nd December, A.D. 1017**; the Makara-saṅkrānti by the Brahma Siddhānta occurred on this day at 44*gh.* 46*p.* after mean sunrise. This day therefore is the regular equivalent of the given date.

204.—*KLISI.* No. 159—Hūli inscription of the time of the W. Chālukya Sōmēśvara I:—

Śakanṛipakāl - ātīta-saṁvatsara - śataṁgaḷu 966 neya Tāraṇa-saṁvatsarada Puśya-sudhdha 10 Ādivāram=a (u)-ttarāyaṇa-saṁkrāntiy-aṁdu.

Tāraṇa by the northern luni-solar system=Ś. 966*=A.D. 1042. In this year, su-10 of the lunar month Pushya ended at 44*gh.* 21*p.* after mean sunrise on **24th December**, on which day, the Makara-saṅkrānti occurred at 14*gh.* 38*p.* after mean sunrise according to the Sūrya Siddhānta. The weekday however was Friday and not Sunday.

In the solar month Pushya, *i.e.*, Makara or Tai, [Māgha-] su 10 ended at 11*gh.* 36*p.* after mean sunrise on **Sunday, 23rd January, A.D. 1043**. The [Kumbha-] saṅkrānti, which occurred at 41*gh.* 32*p.* (S.S.) after mean sunrise on the preceding Saturday, fell *i.e.*, was observed on this Sunday. This day, therefore, — Sunday, 23rd January, A.D. 1043—is the regular equivalent of the given date.

[Kielhorn gives Sunday, 23rd December, A.D. 1044 as the equivalent and remarks that the *tithi* which ended on the day was the first and not the 10th *tithi* of the bright half of Pausha.]

205.—*KLISI.* No. 331.—Bassein plates of the Yādava *Mahāmaṇḍalēśvara* Sēuṇachandra II:—

Saka-saṁvat ēkanavatyadhika-navasa (śa) tēshu saṁvat 991 Saumya-saṁvatsarīya - Śrāvaṇa-sudi chaturdasyāṁ Gurudinē.

This date is irregular for Ś. 991=Saumya. Saumya by the northern luni-solar system=Ś. 989; in this year, Śrāvaṇa-su 14 commenced at 9*gh.* 25*p.* after mean sunrise on **Thursday, 26th July, A.D. 1067**. This perhaps is the day intended by the inscription.

206.—*KLISI.* No. 713—Kaliyūr inscription consisting of praises of Apramēya, a general of Rājarāja I :—

Śakanṛipakāl-ātīta-saṁvatsara-śataṁga[l] 928 neya [Par] ābhava-saṁvatsarada Chaitra-māsada bahuḷa-pañchamiyum=Ādityav[ā]rad=andu.

Ś. 928* (A.D. 1004)=Parābhava by the northern luni-solar system. In this year, the *tithi bahula-pañchamī* of the Chaitra at the end of the year commenced at 18*gh.* 51*p.* after mean sunrise on **Sunday, 1st April, A.D. 1005.** This therefore is the regular equivalent of the given date.

207.—*KLISI.* No. 195—Tāḷgund inscription of the time of the W. Chālukya (Vikramāditya VI) Tribhuvanamalla :—

'The sixteenth year of his reign, the Prajāpati *saṁvatsara*, Sunday, at the time of the sun's commencing his progress to the north.'

The date is irregular for Chā. Vi. 16 current=Prajāpati by the southern luni-solar system. Prajāpati by the northern luni-solar system=Ś. 1010 or A.D. 1088. In this year, the Makara-saṅkrānti occurred on a **Sunday—24th December, A.D. 1088** at 8*gh.* 49*p.* (S.S.) or 7*gh.* 13*p.* (A.S.) after mean sunrise. The *tithi* on this day was Pushya-su 8 which ended at 11*gh.* 15*p.* after mean sunrise on that day. In all probability, this is the day intended by the inscription.

The date however should not strictly speaking be included among verifiable dates; see §§ 46, 47 above.

208.—*KLISI.* No. 200—Baḷagāṁve inscription of the time of the W. Chālukya (Vikramāditya VI) Tribhuvanamalla :—

śrīmach-Chāḷukya-Vikrama-kālada 21 neya Dhātusaṁvatsarada Pushya-su 5 Ādivāradh (d)=andin=uttarāyaṇa-saṁkrānti-vyatīpātad=aṁdu.

The date is irregular for Chā. Vi. 21 current=Dhātṛi by the southern luni-solar system. Dhātṛi by the northern luni-solar system=Ś. 1015 (Chā. Vi. 16 current) or A.D. 1093. In

this year, Pushya-su 5 ended at 28*gh.* 11*p.* after mean sunrise on **Sunday, 25th December, A.D 1093.** The Makara-saṅkrānti which occurred at 26*gh.* 27*p.* (S.S.) or 24*gh.* 49*p.* (A.S.) after mean sunrise on the previous Saturday when the *yōga* Vyatīpāta was current was no doubt observed on this Sunday. This, therefore, is the regular equivalent of the given date.

209.—*KLISI.* No. 205—Baḷagāṁve memorial tablet of the time of the W. Chālukya Vikramāditya VI Tribhuvanamalla :—

"The twenty-seventh year of his reign; the Chitrabhānu *saṁvatsara*; Monday, the first day of the dark fortnight of Phālguna."

The date is irregular for Chā. Vi. 27 current = Chitrabhānu by the southern luni-solar system.

Chitrabhānu by the northern luni-solar system corresponds to Chā. Vi. 24 current or Ś. 1021. In this year, Phālguna-ba 1 commenced at 11*gh.* 36*p.* after mean sunrise on **Monday, 27th February, A.D. 1100.** This therefore is the regular equivalent of the given date.

210.—*KLISI.* No. 216—Baḷagāṁve inscription of the time of the W. Chālukya Vikramāditya VI Tribhuvanamalla :—

śrīmach-Chāḷukya-Vikrama-kālada 39 neya Jaya-saṁvatsarada Chaitrada puṇṇave Ādivāra grahaṇa-vyatīpāta-saṁkramaṇad = aṁdu.

Jaya by the northern luni-solar system corresponds to Chā. Vi. 36 current or Ś. 1033. In this year, the *pūrṇimā* of the *solar* month Chaitra or Mēsha (Chittirai) ended at 34*gh.* 10*p.* after mean sunrise on **25th April**; the [Vṛishabha-] saṅkrānti also which occurred at 24*gh.* (S.S.) after mean sunrise of the previous day could fall, *i.e.*, be observed on this day; and there was also a lunar eclipse visible in India which occurred on this day. The weekday however was Tuesday and not Sunday. In all likelihood this **Tuesday, 25th April, A.D. 1111** is the day intended by the inscription.

In this year, the *pūrṇimā* of the lunar month Chaitra was current on Sunday, 26th March, A.D. 1111, while the Mēsha-saṅkrānti fell on Saturday, 25th March.

[Kielhorn gives Sunday, 22nd March, A.D. 1114 as the equivalent and notes that there was no eclipse and that the Mēsha-saṅkrānti took place on 24th March.]

211.—*KLISI.* No. 290—Tāḷgund memorial tablet of the time of the Kaḷachurya Sōvidēva :—

Sōvidēva-varushada Virōdhikritu saṁvatsarada Āśvija-bahuḷa 8 nē Ādivārad=aṁ [du].

Ś. 1109=Virōdhikṛit by the northern luni-solar system. In this year, Āśvija-ba 8 ended at 28*gh.* 36*p.* after mean sunrise on **Sunday, 27th September, A.D. 1187.** This therefore is the regular equivalent of the given date.

212.—*KLISI.* No. 383—Sindigere inscription; date of the time of the Hoysala Vinayāditya :—

'The Śaka year 967[1], the year Sarvajit, the month Phálguna, the 3rd day of the moon's increase, Monday.'

Ś. 967=Sarvajit by the northern luni-solar system of Jovian years. In this year, Phālguna-su 3 commenced at the very end[2] of **Monday, 10th February, A.D. 1046**; this therefore is the regular equivalent of the given date.

213.—*KLISI.* No. 384—Nirgund inscription; date of the time of the *Mahāmaṇḍalēśvara* Gaṅgarasa and (?) the Hoysala Vishṇuvardhana :—

"In the Śaka year 987, the year Nala, the month Pushya, the 5th day of the moon's increase, Thursday, the time of the sun's entering the northern signs."

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[1] This is the correct reading and not Ś. 961; see *Epig. Carnatica*, IV, Ng. 32.

[2] *i.e.*, 1*gh.* 45*p.* before mean sunrise of Tuesday, 11th February; or about 1 hour 5 minutes only before true local sunrise at Mysore.

The occasion for citing the above date is the marriage of Ballāḷa I with the three daughters of Mariyāne-daṇḍanāyaka. The practice of performing marriages between 4 or 5 A.M. and sunrise continues to this day in the Mysore country and there are certain sects of people who choose this time and none other for celebrating marriages.

Ś. 987, current or expired, is not Nala by any system of Jovian years. But Ś. 997 current (=A.D. 1074) is Nala by the northern luni-solar system. In this year the Makara-saṅkrānti took place at 31*gh.* 28*p.* (S.S.) after mean sunrise on Wednesday, and was therefore observed on the following day, Thursday, 25th December, A.D. 1074, on which day Pushya-su 5 ended at 38*gh.* 17*p.* after mean sunrise. Ś. 987 therefore seems to be a mistake for Ś. 997 in which case **Thursday, 25th December, A.D. 1074** would be the regular equivalent of the given date.

E:—Meansign Jovian Years.

214.—*KLISI.* No. 106—Guṇḍūr inscription of the time of the Rāshṭrakūṭa Kakka II:—

Sakha-varsham=eṇṭu-nūṟa-tombhatt-āṟaneya Śrīmukha-saṁvatsar=Āshāḍa - dakshiṇāyana - saṁkrāntiyum=Āditya-vārad=anduṁ.

In the year Ś. 893, the mean-sign Jovian year Śrīmukha was current, according to the Ārya and Brahma Siddhāntas, in the month of Āshāḍha; in this month, the *dakshiṇāyana-saṅkrānti* occurred at 16*gh.* 15*p.* (S.S.) or 7*gh.* 58*p.* (A.S.) after mean sunrise on **Sunday, 25th June, A.D 971.** [The *tithi* was Āshāḍha-amāvāsyā on that day.] This therefore seems to be the equivalent of the given date, which however, strictly speaking, is not a verifiable date; see § 46 above.

215.—*KLISI.* No. 141—Sogal inscription of the time of the W. Chālukya Taila II:—

Saka-varsha 902 neya Vikrama-saṁvatsarad-Āshāḍad=amavāsyey=Ādiv[āraṁ] sūryyagrahaṇa-nimittadoḷ.

According to the Ārya and Brahma Siddhāntas the mean-sign Jovian year Vikrama was current at the beginning of Āshāḍha in Ś. 900. On the *amāvāsyā* at the beginning of this Āshāḍha, **8th June, A.D. 978,** there took place a solar eclipse which was visible in India. The weekday however was Saturday and not Sunday.

This Saturday—8th June, A.D. 978, seems to be the equivalent of the given date.

216.—*KLISI.* No. 160.—Tāḷgund inscription of the time of the W. Chālukya Somēśvara I Trailōkyamalla :—

"The Pārthiva *saṁvatsara*; Sunday, the tenth day of the bright fortnight of Pushya, at the time of the sun's commencing his progress to the north."

The mean-sign Jovian year Pārthiva was current, according to all the Siddhāntas, in Pushya and Māgha of Ś. 964 (=A.D. 1042). In this Jovian year, the Makara-saṅkrānti occurred at 14*gh.* 39*p.* (S.S.) or 13*gh.* 19*p.* (A.S.) after mean sunrise on 24th December, A.D. 1042, on which day su-10 of the lunar month Pushya ended, at 44*gh.* 21*p.* after mean sunrise; the weekday, however, was Friday and not Sunday.

The *tithi* su-10 of the *solar* month Pushya, *i.e.*, of Makara (or Tai) ended at 11*gh.* 36*p.* on **Sunday, 23rd January, A.D. 1043** on which day the Kumbha-saṅkrānti which occurred at 41*gh.* 32*p.* (S.S.) or 56*gh.* 11*p.* (A. S.) after mean sunrise of the preceding Saturday, fell, *i.e.*, was observed. In all probability, therefore, this Sunday, 23rd January, A.D. 1043 is the day intended by the inscription.

217.—*KLISI.* No. 206—Baḷagāṁve inscription of the time of the W. Chālukya (Vikramāditya VI) Tribhuvana-malla :—

śrīmach-Chāḷukya-Vikrama-varshada 27 neya Chitra-bhānu-saṁvatsarada Phālguṇad=amāvāsye Ādityavāra saṅkramaṇa-vyatīpātad=aṁdu.

This regularly corresponds to **Sunday, 23rd January, A.D. 1099**, on which day the *amāvāsyā* at the beginning of Phāl-guna commenced at 8*gh.* 19*p.* after mean sunrise. On this day the [*Kumbha-*]*saṅkrānti* took place at 10*gh.* 58*p.* (S.S.) or 9*gh.* 50*p.* (A.S.) after mean sunrise, and the mean-sign Jovian year current according to the Ārya and Brahma Siddhāntas was Chitrabhānu.

218.—*KLISI.* No. 227—Baḷagāṁve inscription of the reign of the W. Chālukya Somēśvara III Bhūlōkamalla :—

"The third year of his reign, the Kīlaka *saṁvatsara*; Thursday, the day of the new moon of Māgha.'

Kīlaka by the southern luni-solar system = Ś. 1050; for this year the date is irregular. But in the year previous to this Kīlaka—*i.e.*, in Ś. 1050 current, Māgha-amāvāsyā ended at 25*gh.* 57*p.* on **Thursday, 2nd February, A.D. 1128.**

Kīlaka by the mean-sign system of Jovian years was current from about 5th November, A.D. 1124; in this mean-sign Kīlaka, Māgha-amāvāsyā ended at 21*gh.* 7*p.* on **Thursday, 5th February, A.D. 1125.**

The given date corresponds to either of these two days.

219.—*KLISI.* No. 299—Baḷagāṁve memorial tablet of the reign of the Kaḷachurya Āhavamalla:—

"The eighth year of his reign; the Śōbhakṛit *saṁvatsara*, Monday the fifth day of the bright fortnight of Phālguna (or, the month Bhādrapada, the 13th day of the moon's decrease).

Śōbhakṛit by the southern luni-solar system = Ś. 1105; for this year the above date is irregular with either reading.

For the first of the *tithis* mentioned therein—Phālguna-su 5—the date corresponds to **Monday, 12th February, A.D. 1179.** On this day, Phālguna-su 5 commenced at 50*gh.* 39*p.* after mean sunrise; and the mean-sign Jovian year current according to the Ārya and Brahma Siddhāntas was Śōbhakṛit.

As regards the alternative reading of Bhādrapada-ba 13, this *tithi* ended at 38*gh.* 33*p.* on **Monday, 11th September, A.D. 1178,** when the mean-sign Jovian year Śubhakṛit was current.

In the year following Śōbhakṛit = Ś. 1105 also, Bhādrapada-ba 13 commenced at 33*gh.* 21*p.* after mean sunrise on **Monday, 3rd September, A.D. 1184.**

Thus, for Phālguna-su 5, the equivalent would be Monday, 12th February A.D. 1179; for Bhādrapada-ba 13 the equivalent would be either Monday, 11th September, A.D. 1178; or Monday, 3rd September, A.D. 1184. In the former case the date would be of the type G given below and in the latter case of the type B given above.

220.—*KLISI.* No. 467—Bēlūr plates of Harihara II :—

Śaka-varsha sāvirada-mūnūṛa-nākaneya Dundubhi-saṁvatsarada Kārttika-bahuḷa-daśami Ādivāra-dali.

Ś. 1304=Dundubhi; for this year the date is irregular. Dundubhi by the mean-sign system began about 8th October, A.D. 1375; in this year, Kārttika-ba 10 began at 15*gh.* 34*p.* after mean sunrise on **Sunday, 18th October, A.D. 1375.** This seems to be the day intended by the inscription.

221.—*KLISI.* No. 221—Dāvaṇgere inscription of the W. Chālukya (Vikramāditya VI) Tribhuvanamalla :—

Chāḷukya-Vikrama-kālada 33 neya Sarvvadhāri-saṁvatsarada Pushya-śuddha-paṁchami Brihavārad=uttarāyaṇa-saṅkramaṇa-vyatīpāta-nimittam=āgi.

Kielhorn suggests (for Sarvadhārin=Ś. 1030), Thursday, 24th December, A.D. 1108 as the equivalent with the note that this day fell in the dark, not the bright, half of Pausha.

By the mean-sign system, Sarvadhārin began on 4th January, A.D. 1105. In this Sarvadhārin, su-5 of *solar* Pausha or Makara (Tai) began at 43*gh.* 8*p.* after mean sunrise on **Saturday, 21st January, A.D. 1105.** The [*Kumbha-*] *saṅkrānti* occurred on this day at 40*gh.* 32*p.* after mean sunrise according to the Brahma Siddhānta. This day therefore seems to be the one intended by the inscription.

222.—*KLISI.* No. 472—Conjeevaram inscription of Harihara II :—

Śakty-ālōkē Śak-ābdē pariṇama [ti] śubhē Śśrīmukh-Āshā [ḍha]-māsē śuddhē pakshē daśamyāṁ Ravisuta-divasē Mitra-bhē.

Śrīmukha by the mean-sign system began on 6th July, A.D. 1386 according to the Brahma Siddhānta. In this Śrīmukha, su-10 of [nija-]Āshāḍha ended at 37*gh.* 51*p.* after mean sunrise on **Saturday, 7th July, A.D. 1386.** The *nakshatra* Anūrādhā, too, (which has Mitra for its deity), began on this day at 14*gh.* 5*p.* after mean sunrise. This day therefore is the one intended by the inscription.

F:—Following Years of Northern Luni-solar Years.

223.—*KLISI.* No. 198—Ḍambaḷ inscription of the reign of the W. Chālukya (Vikramāditya VI) Tribhuvanamalla :—

śrī-Chāḷūkya-Vikrama-varshada 19 neya Yuva-saṁvatsarada Māgha-śuddha-paṁchamī Ādityavārad=aṁdu uttarāyaṇa-saṁkrānti-vyatīpātad=aṁdu.

Yuvan by the northern luni-solar system=Ś. 1014. In the year following this Yuvan, Māgha-su 5 commenced at 59*gh.* 17*p.* after mean sunrise according to the Brahma Siddhānta on Sunday, 22nd January, A.D. 1094. The [*Kumbha-*]*saṁkrānti* occurred, according to the same Siddhānta, at 49*gh.* 57*p.* after mean sunrise of the preceding Saturday and would naturally be observed (see § 28 above) on Sunday. This **Sunday, 22nd January, A.D. 1094** seems therefore to be the day[1] intended by the inscription.

224.—*KLISI.* No. 257—Ḍambaḷ inscription of the W. Chālukya Sōmēśvara IV Tribhuvanamalla :—

Sakanṛipakāl-ātīta-saṁvatsara 1106 neya Krōdhi-saṁvatsarad=Āśa(shā)ḍa(ḍha)d=amāvāsye Sōmavāra sūryya-grahaṇa-saṁkrānti vyatīpātad=aṁdu.

For Ś. 1106=Krōdhin, Kielhorn suggests Monday, 9th July, A.D. 1184 as the equivalent with the note that there was no eclipse and no *saṁkrānti* on that day.

Krōdhin by the northern luni-solar system=Ś. 1102. In the year following this Krōdhin, a solar eclipse invisible in India took place on Āshāḍha-amāvāsyā on **Monday, 13th July, A.D. 1181.** The tropical [*Siṁha-*] *saṁkrānti*, however, took place, not on that day, but on the following day at 58*gh.* 47*p.* after mean sunrise according to the Brahma

[1] Or should we regard *Māgha* as a mistake for *Pushya* ? In that case, the equivalent would be Sunday, 25th December, A.D. 1093 ; for, on this day, Pushya-su 5 of the year following the northern luni-solar Yuvan ended at 28*gh.* 11*p.* after mean sunrise. The Makara-saṁkrānti, too, which had occurred at 26*gh.* 27*p.* (S.S.) or 24*gh.* 49*p.* (A.S.) after mean sunrise of the previous day, would, according to one usage (see § 28 above), be associated with Sunday.

Siddhānta. This Monday, therefore, seems to be the day intended by the inscription.

G:—Previous Years of Mean-sign Years.

225.—*KLISI.* No. 225—Chitaldurg inscription of the W. Chālukya Jagadēkamalla II:—

'Śaka 1045, the Śōbhakṛit *saṁvatsara*; Sunday, the tenth day of the bright fortnight of Phālguna' (*Mys. Inscr.*: 'at the time of the equinox.').

Śōbhakṛit by the mean-sign system was current from 5th November, A.D. 1119 to 31st October, A.D. 1120.

In the year preceding this Śōbhakṛit, *i.e.*, int he mean-sign Śubhakṛit (9th November, A.D. 1118—5th November, A.D. 1119), Phālguna-su 10 ended at 4*gh.* 34*p.* after mean sunrise on 22nd February, A.D. 1119. On that day, too, occurred the [*Mīna*-] *saṅkrānti* at 8*gh.* 44*p.* (A.S.) or 10*gh.* 41*p.* (S.S.) after mean sunrise. The weekday, however, was not Sunday, but Saturday.

In the same year, su-10 of *solar* Phālguna or Mīna (Paṅguni) commenced at 43*gh.* 29*p.* after mean sunrise on **Sunday, 23rd March, A.D. 1119**; on that day, too, took place the [*Mēsha*-] *saṅkrānti* at 46*gh.* 1*p.* after mean sunrise according to the Brahma Siddhānta. This Sunday therefore is the day intended by the inscription.

226.—*KLISI.* No. 179—Balagāṁve inscription of the W. Chālukya (Sōmēśvara II) Bhuvanaikamalla:—

Saka-varsha 997 neya Rākshasa-saṁvatsarada Pushya-śuddha 1 Sōmavārad=andin=uttarāyaṇa-saṁkrānti-parbba-nimittadin.

Ś. 997=Rākshasa by the southern luni-solar system; Ś. 994=Rākshasa by the mean-sign system; and Ś. 995=Rākshasa by the northern luni-solar system. For these years the date is irregular. But for the year previous to the mean-sign Rākshasa, the date works out correctly; for in this year (=Ś. 993), su-1 of lunar Pushya ended at 24*gh.* 10*p.* on 25th December, A.D. 1071; on this day fell, *i.e.*, was observed the Makara-saṅkrānti also which occurred at 44*gh.*

54*p*. (S.S.) or 43*gh*. 22*p*. (A.S.) after mean sunrise of the preceding day. The weekday however was, Sunday and not Monday.

In the same year su-1 of the *solar* Pushya (=Makara or Tai) began at 8*gh*. 16*p*. on **23rd January, A.D. 1072**; on this day occurred the Kumbha-saṅkrānti at 11*gh*. 47*p*. (S.S.) or 10*gh*. 46*p*. (A.S.) after sunrise. The weekday too was a **Monday.** I am therefore thinking that this is the day intended by the inscription.

227.—*KLISI.* No. 232—Managōḷi inscription of the reign of the Kaḷachurya Bijjala; date of the 5th year of the W. Chāḷukya Jagadēkamalla II's reign :—

nija-bhuja-vijaya-nām-āṁkita-varshada 5 neya Duṁdubhi-saṁvatsarada Puishya-śuddha 10 Brihaspativārad=aṁd =uttarāyaṇasaṁkrānti-vyatīpāta-nimittav=āgi.

Dundubhi by the southern luni-solar system=Ś. 1064, by the northern luni-solar system=Ś. 1061 and by the mean-sign system=Ś. 1060 [commenced according to the Brahma Siddhānta about 23rd June, A.D. 1138]; for these years the date is irregular. But in Ś. 1059, the year previous to the mean-sign Dundubhi, Pushya-su 10 ended at 53*gh*. 59*p*. after mean sunrise on **Thursday, 23rd December, A. D. 1137**; on this day also took place the Makara-saṅkrānti at 47*gh*. 44*p*. after mean sunrise according to the Brahma Siddhānta. This therefore seems to be the equivalent of the given date.

228.—*KLISI.* No. 190—Hadali inscription of the Chāḷukya (Vikramāditya VI) Tribhuvanamalla :—

Śrīmach-Chāḷukya-vikrama-varshada 9 neya Raktākshi -saṁvatsarada Chaitra-sudhdha 1 Sōmavārad=aṁdu.

Chā. Vi. 9 current=Ś. 1006=Raktāksha by the southern luni-solar system. For this year the date is irregular. It is also irregular for the northern luni-solar Raktāksha= Ś. 1003, as well as for the mean-sign Raktāksha which according to the Brahma Siddhānta began about the 23rd February, A.D. 1081.

In the year previous to this mean-sign Raktāksha, Chaitra-su 1 ended at 36*gh.* 39*p.* after mean sunrise on **Monday, 24th February, A.D. 1080.**

This seems to be the day intended by the inscription.

229.—*KLISI.* No. 208—Tāḷgund inscription of the time of the W. Chālukya (Vikramāditya VI) Tribhuvanamalla :—

Chālukya-Vikrama-kālada mūvatt-eraḍeneya Sarvvajit-saṁvatsarada Chaitra-suddha-tadige Bṛihaspativāradalu.

Chā. Vi. 32 current=Sarvajit by the southern luni-solar system(=Ś. 1029). For this year the date is irregular. It is also irregular for the northern luni-solar Sarvajit (=Ś. 1026) as well as for the mean-sign Sarvajit which according to the Brahma Siddhānta began on. 18th November, A.D. 1103.

In the year previous to this mean-sign Sarvajit, Chaitra-su 3 ended at 59*gh.* 22*p.* after mean sunrise on **Thursday, 12th March, A.D. 1103.** This perhaps is the day intended by the inscription.

H :—Following Years but one.

230.—*KLISI.* No. 668—Muḍiyanūr plates of the Bāṇa king Śrī-vadhūvallabha Malladēva Nandivarman :—

ēka-shashṭy-uttara-dvaya-śatē Śākabdaḥ pravarddhamān-ātmanaḥ trayōviṁśati varttamāna-Viḷambi-saṁvatsarē Kārttika-śukla-pakshē trayōdasyāṁ Sōmavārē Aśvinyāṁ nakshatrē.

Ś. 261 current=Vilambin by the southern luni-solar system. In the following year but one of this Vilambin, Kārttika-su 13 ended at 6*gh.* 53*p.* and the *nakshatra* Aśvinī at 40*gh.* 5*p.* after mean sunrise on **Monday, 20th October, A.D. 340.** This therefore is the equivalent of the given date.

231.—*KLISI.* No. 157—Baḷagāṁve inscription of the W. Chālukya Jayasiṁha II Jagadēkamalla :—

Śaka-varsha 957 neya Yuva-saṁvatsarada Pushyada paurṇṇamāsey=uttarāyaṇa - saṁkrānti-vyatīpātam=Āditya-vārad=aṁdu.

Ś. 957=Yuvan. In the following year but one, Pushya-su 15 ended at 16*gh.* 51*p.* after mean sunrise on **Sunday,**

25th December, A.D. 1037. With this day, too, was associated, according to one usage (see § 28 above), the Makara-saṅkrānti which had occurred at 55*gh.* 39*p.* (S.S.) or 57*gh.* 2*p.* (A.S.) after mean sunrise of the preceding day but one—that is, of Friday, 23rd December. This Sunday therefore is the day intended by the inscription.

I:—Preceding Years but one.

232.—*KLISI.* No. 163—Saundatti inscription of the reign of the W. Chālukya (Sōmēśvara I) Trailōkyamalla:—

'Śaka 970; the Sarvadhāri *saṁvatsara*, on Sunday, the seventh day of the dark fortnight of the month Pushya, at the time when the sun was commencing his progress to the north.'

Sarvadhārin by the mean-sign system began on 16th September, A.D. 1045. In the preceding year but one of this Sarvadhārin, *i.e.*, in the mean-sign Vyaya (25th September, A.D. 1043—20th September, A.D. 1044), Pushya-ba 7 ended at 40*gh.* 24*p.* after mean sunrise on **Sunday, 25th December, A.D. 1043.** On that day, too, was perhaps observed (see § 28 above) the Makara-saṅkrānti which occurred at 30*gh.* 11*p.* (S.S.) or 28*gh.* 46*p.* (A.S.) after mean sunrise of the preceding Saturday. This Sunday therefore is the day intended by the inscription.

233.—*KLISI.* No. 230—Baḷagāṁve inscription of the reign of the W. Chālukya (Sōmēśvara III) Bhūlōkamalla:—

'The Siddhārthi *saṁvatsara*; Sunday, the thirteenth day of the bright fortnight of Pushya; at the time of the sun's commencing his progress to the north.'

Siddhārthin by the southern luni-solar system = Ś. 1061. In the preceding year but one of this Siddhārthin [1], Pushya-su 13 began about 1*gh.* 39*p.* before mean sunrise of **Sunday, 26th December, A.D. 1137** and was current for the whole of

[1] That is, in Ś. 1059. Ś. 1059 is also the year following the northern luni-solar Siddhārthin, so that this date can also be looked as belonging to type F above.

that day. The Makara-saṅkrānti occurred at 49*gh.* 34*p.* (S.S.) or 47*gh.* 44*p.* (A.S.) after mean sunrise of Friday, 24th December, and was perhaps (see § 28 above) associated with the following day but one. This Sunday therefore seems to be the day intended by the inscription.

234.—*KLISI.* No. 359—Munoḷḷi inscription of the Dēvagiri-Yādava Kandhara (*i.e.*, Kṛishṇa, son of Jaitugi II) :—

Saka-varsha 1174 neya Virō[dhikṛitu]-saṁvatsarada Jēshṭa-bahuḷav=amāvāse sūryyagrahaṇa Su(Śu)kravā-[rad=a]ṁdu.

Ś. 1174 current=Virōdhikṛit. In the preceding year but one of this Virōdhikṛit, there took place a solar eclipse invisible in India on **Friday, 14th May, A.D. 1249**, the day on which the *amāvāsyā* at the beginning of Jyēshṭha ended. This, therefore, seems to be the day intended by the inscription.

J:—Dates with incompatible details.

235.—*KLISI.* No. 109.—Tagaḍūru plates of the W. Gaṅga Harivarman :—

Saka-varishēshu gatēshu aṭṭāsiti-satē Vibhava-saṁvatsarē Phālguṇa-māsē suddha-[da]sami-Guruvārē Punarvasu-nakshatrē.

Ś. 188=A.D. 266=Vyaya and not Vibhava by the southern luni-solar system. In this Vyaya, Phālguna-su 10 ended at 40*gh.* 42*p.* after mean sunrise on **Thursday, 21st February, A.D. 268.** On this day the *nakshatra* Punarvasū, too, ended at 24*gh.* 5*p.* after mean sunrise.

This day therefore seems to be the day intended by the inscription and Vibhava a mistake for Vyaya.

236.—*KLISI.* No. 112—Merkara plates of the W. Gaṅga Avinīta :—

ashṭa asīti uttarasya trayō-satasya saṁvatsarasya Māghamāsaṁ Śōmavāraṁ Svāti-nakshatra suddha-pañchami.

The date is irregular inasmuch as the *nakshatra* Svāti cannot occur combined with *śuddha-pañchamī* in Māgha. Therefore either the *nakshatra* or the fortnight has been wrongly quoted here[1]; in all likelihood the former.

Ś. 388†=A.D. 467 [=Plavaṅga by the southern and Śubhakṛit by the northern luni-solar system]. In this year, Māgha-su 5 commenced at 14*gh.* 50*p.* after mean sunrise on **Monday, 15th January, A.D. 468.** The *nakshatra* on this day was Uttarā-Bhādrapadā which, by the equal-space system and by the system of Garga ended at 20*gh.* 37*p.* after mean sunrise, and by the system of the Brahma Siddhānta, about one *ghaṭikā* later.

In the same month, *bahula-pañchamī* began at 37*gh.* 28*p.* after mean sunrise on Monday, 29th January, A.D. 468 and ended on the next Tuesday; the *nakshatra* Svāti however was not connected with this Monday at all as it began after sunrise on Tuesday, 30th January.

In the given date therefore, the *nakshatra* has been quoted wrongly, and the equivalent is Monday, 15th January, A.D. 468.

237.—*KLISI.* No. 300—Bēhaṭṭi plates of the Kaḷachuri Siṅghaṇa:—

Sakanṛipakāl-ātītē cha paṁchōttara-śatādhika-sahasratagē (mē) Śakē Śōbhakṛit-saṁvatsarē Āśvayukt-āmāvāsyāṁ Sōmavārē Vyatīpāta-yōgē.

The date is irregular as the *yōga* Vyatīpāta cannot occur in combination with Āśvina-amāvāsyā; 'Vyatīpāta' is therefore a mistake for 'Vaidhṛiti,' or perhaps, 'Āśva-yukta' is a mistake for 'Āshāḍha.'

In the former case, the date does not work out correctly for the southern luni-solar Śōbhakṛit (=Ś. 1105). In the northern luni-solar Śōbhakṛit (=Ś. 1101), however, Āśvina-amāvāsyā commenced at 36*gh.* 34*p.* after mean sunrise on

[1] Compare Nos. 480, 604 and 853 in Kielhorn's *List of Inscriptions of Southern India.*

Monday, 1st October, A.D. 1179, on which day the *yōga* Vaidhṛiti ended at *55gh. 20p.* after mean sunrise.

In the latter case, Āshāḍha-amāvāsyā of the year following the southern luni-solar Śōbhakṛit ended according to the Brahma Siddhānta at *28gh. 47p.* after mean sunrise on **Monday, 9th July, A.D. 1184;** the *yōga* Vyatīpāta commenced according to the same Siddhānta at *16gh. 35p.* after mean sunrise on that day.

It seems to me that one of the above two days is the day intended by the inscription.

238.—*KLISI.* No. 404—Śravaṇa-Belgoḷa inscription recording the date of the death of Baladēva, son's son of the Daṇḍanāyaka Baladēva:—

Śaka-varusha 1041 Siddhārthi-saṁvatsarada Mārggasira-suddha-pāḍiva Sōmavārad=andu.

Siddhārthin by the southern luni-solar system=Ś. 1061 and not Ś. 1041. In the year following this Siddhārthin, Mārgaśira-su 1 commenced at *30gh. 47p.* after mean sunrise on **Monday, 11th November, A.D. 1140.** This, perhaps, is the day intended by the inscription.

The date is irregular for Ś. 1041=Pramāthin, for the year following and for the year preceding.

239.—*KLISI.* No. 418.—Tālgund inscription of the time of the Hoysala Vīra-Ballāḷa II:—

Saka-varshada 1113 neya Siddhārthi-saṁvatsarada Chaiyatra-su 11 Ādivāra Vyatīpāta-saṁkramāṇad=aṁdu.

The date is irregular as the Śaka year and the Jovian year cited do not correspond. Siddhārthin=Ś. 1121 by the southern luni-solar system and Ś. 1117 by the northern luni-solar system. By the mean-sign system the year Siddhārthin according to the Sūrya Siddhānta began about *1gh. 23p.* before mean sunrise of 20th December, A.D. 1194 and ended on 16th December, A.D. 1195.

Ś. 1113=Virōdhikṛit by the southern luni-solar system; in this year, su-11 of the Chaitra at the end of the solar year commenced at *16gh. 42p.* after mean sunrise on

25th March, A.D. 1192. The Mēsha-saṅkrānti occurred at 25*gh.* 15*p.* (S.S.) after mean sunrise on the previous day, and was therefore observed on the 25th. The weekday, however, was Wednesday and not Sunday.

In the mean-sign Siddhārthin (=A.D. 1194, 1195), Chaitra-su 11 ended at 48*gh.* 5*p.* after mean sunrise on **23rd March, A.D. 1195**, while the Mēsha-saṅkrānti, according to the Brahma Siddhānta took place on that day at 53*gh.* 8*p.* after mean sunrise. The weekday again was not Sunday, but Thursday in this case.

It seems to me that the latter of these two days is the one intended by the inscription[1].

240.—*KLISI.* No. 532—Vijayanagara inscription of the time of Sadāśivarāya :—

'In the year of Śālivāhana 1483, corresponding to the year Durmati, in Chaitra *sudi-pañchamī*, Śanivār . . . . . in the season of Makara-saṁkrānti-puṇyakāla'.

The date is irregular and needs to be emended as the Makara-saṅkrānti cannot occur in Chaitra. Therefore (1) either *Chaitra* is a mistake for *Pushya* or (2) *Makara-saṅkrānti* is a mistake for *Mēsha-saṅkrānti.*

In the latter case, the day intended by the inscription seems to be either Saturday, 27th March, A.D. 1563 or Sunday, 28th March, A.D. 1563. On the first of these days the Makara-saṅkrānti according to the Brahma Siddhānta took place at 20*gh.* 19*p.* after mean sunrise; the *tithi*

1 The explanation of the reason why Ś. 1113 is coupled with Siddhārthin seems, to my thinking, to lie in a double confusion between the northern and southern luni-solar years. Ś. 1117 = Rākshasa by the southern luni-solar system. Rākshasa by the northern luni-solar system = Ś. 1113; while by the northern luni-solar system, Ś. 1117 = Siddhārthin. The confusion therefore seems to have progressed in this way :—

Siddhārthin = Ś. 1117 (by the northern luni-solar system).

Ś. 1117 = Rākshasa (by the southern luni-solar system)—(1).

Rākshasa = Ś. 1113 by the northern luni-solar system. (2).

Therefore, Siddhārthin = Ś. 1113.

See § 9 above.

current however was not su-5 but su-4 of Chaitra at the end of the year following Durmati [=Ś. 1483].

On the second of these days, the Makara-saṅkrānti took place at 25*gh.* 10*p.* (S.S.) or 20*gh.* 19*p.* (A.S.) after mean sunrise, and the *tithi* su-5 of Chaitra at the end of the year following Durmati [=Ś. 1483] commenced at 1*gh.* 12*p.* after mean sunrise. The weekday however was not Saturday but Sunday.

On the assumption that 'Chaitra' is a mistake for 'Pushya,' the equivalent of the date would be Saturday, 29th December, A.D. 1554. For, Durmati by the northern luni-solar system corresponds to Ś. 1475; and in the year following this Durmati, Pushya-su 5 ended at 5*gh.* 13*p.* after mean sunrise on **Saturday, 29th December, A.D. 1554**; the Makara-saṅkrānti occurred at 43*gh.* 32*p.* (S.S.) or 39*gh.* 55*p.* (A.S.) after mean sunrise of the preceding Friday and was therefore observed on that Saturday.

In all likelihood, this last day seems to be the one intended by the inscription.

241.—*KLISI.* No. 737—Aṅkanāthapura inscription of the reign of Rājēndrachōḷa I :—

Shaka-varisham 959 neya Īśvara-shatsaṁrada Āsada-māssada Kāḷāshṭavaya Shāti-naktra Sommavārad=andu.*

The date is irregular; for in the month of Āshāḍha the *nakshatra* Svāti cannot occur in the dark half of the month. Either, therefore, the *nakshatra* or the fortnight, in my opinion the latter, is wrongly quoted here; compare *KLISI.* Nos. 822, 853, 480, etc.

Emending therefore 'kālāshṭamī' to 'śuklāshṭamī,' we find that in Ś. 959 which, by the southern luni-solar system corresponded to Īśvara, Āshāḍha-su 8 began at 36*gh.* 3*p.* after mean sunrise on 22nd June, A.D. 1037 and ended on 23rd June, A.D. 1037 at 30*gh.* 21*p.* after mean sunrise. On

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* Read :—Śaka-varsham 959 neya Īśvara-saṁvatsarada Āshāḍha-māsada Kālāshṭamiya Svāti-nakshatra Saumyavārad=andu.

this latter day the *nakshatra* Svāti commenced at 43*gh.* after mean sunrise by the Brahma Siddhānta system of unequal spaces and some time later by the other systems. The weekday however was Thursday and not Wednesday.

By the mean-sign system, the year Īśvara began in Ś. 956 (on 23rd October, A.D. 1034); in the year previous to this Īśvara, Āshāḍha-su 8 ended at 56*gh.* 19*p.* after mean sunrise on **Wednesday, 26th June, A.D. 1034.** The *nakshatra* Svāti began on this day at 53*gh.* 1*p.* after mean sunrise by the equal-space system and by the unequal space system of Garga, and about 10*gh.* earlier by the uneqaul space system of the Brahma Siddhānta.

This latter seems to be the day intended by the inscription.

242.—*KLISI.* No. 866—Paḍavēḍu inscription of Rājagambhīra Śambuva-rāyaṇ :—

'To-day, which is (the day of) Rēvatī and Monday the seventh lunar day of the former half of the month of Karkaṭaka, which was current after the Śaka year one thousand one hundred and eighty.'

The date is irregular and needs to be emended, as in the month of Karkaṭaka, the *nakshatra* Rēvatī cannot occur in combination with *śuddha-saptamī.* Either therefore the *nakshatra,* or the fortnight—in my opinion the latter—has been wrongly quoted here. Compare No. 241 above.

Reading therefore 'latter half' for 'former half' we find that in Ś. 1180, ba-7 of the *lunar* month Karkaṭaka or Āshāḍha ended at 50*gh.* 55*p.* after mean sunrise on **Monday, 24th June, A.D. 1258**; on this day the *nakshatra* Rēvatī commenced at 21*gh.* 56*p.* after mean sunrise. This therefore is the equivalent of the given date.

243.—*KLISI.* No. 978—Śravaṇa-Belgoḷa inscription recording grants by private persons :—

śrīmatu-Śaka-varsha 1203 neya Pramādi-saṁvatsara Mārggaśira-su 10 Bri=d=andu.

The date is irregular as the Jovian and Śaka years do not correspond.

Ś. 1203 is not Pramādin, nor even Pramāthin, but Vṛisha (Vishu) by the southern luni-solar system. In this year, Mārgaśira-su 10 ended at 44*gh.* 58*p.* after mean sunrise on **Saturday, 22nd November, A.D. 1281.**

In the year following, Mārgaśira-su 10 ended at 20*gh.* 29*p.* after mean sunrise on **Thursday, 12th November, A.D. 1282.**

One of these two days is the equivalent of the given date. [Ś. 1201=Pramāthin; for this year and the year following the above date is irregular.]

244.—*KLISI.* No. 413—Śravaṇa-Belgoḷa inscription recording the erection of a monument for Siṅgimayya, son of the Daṇḍanāyaka Baladēva:—

Saka-varusha 1041 neya Siddhārthi-saṁvatsarada Kārttika-suddha-dvādasi Sōmavārad=andu.

The date is irregular as the Śaka and Jovian years do not correspond. We have to read either Vilamba instead of Siddhārthin or Ś. 1061 instead of Ś. 1041.

In the former case, the equivalent will be **Monday, 28th October, A.D. 1118,** as on that day Kārttika-su 12 of Vilamba which corresponded to Ś. 1041 current by the southern luni-solar system, ended at 3*gh.* 4*p.* after mean sunrise.

In the latter case the date is irregular for Siddhārthin =Ś. 1061; but in the previous year, Kārttika-su 12 ended at 10*gh.* 22*p.* after mean sunrise on **Monday, 17th October, A.D. 1138.**

K:—Some Irregular Dates with conjectural emendations.

245.—*KLISI.* No. 21—Kurtakōṭi plates of the Chālukya Vikramāditya I Satyāśraya:—

batriṁśōttara-pañcha-śatēshu Saka-varshēshv=atītēshu vijayarāja-sambachchara - shōsha(ḍa)śa - varshē pravarttamāna . . . . tasya Vaiśākha-Jēshṭhā-māsa-madhyama-amavāsya Bhāskara-dinē Rōhiṇya-ṛikshē madhyāhna-kālē . . . . Vṛishabha-rāśau sūryyagrahaṇa-sarvvamā(grā)si(sī)bhūtē.

This date is irregular for Ś. 532, current and expired, for Ś. 533 and for Ś. 530. In Ś. 532, 531 and 533 there was no solar eclipse on Vaiśākha-amāvāsyā; in Ś. 530 there was a solar eclipse on that day but the weekday was Saturday and the *nakshatra* current at the time was Kṛittikā by all the three systems and not Rōhiṇī.

In Ś. 522* there occurred a solar eclipse visible in India on the morning of **Sunday, 11th May, A.D. 598.** The *tithi* on that day was Vaiśākha-amāvāsyā, the *nakshatra* current at the time was Rōhiṇī by all the three systems, and the position of the sun was in Vṛishabha.

Batriṁśa therefore seems to be a mistake for *bāviṁśa*; and the above day the one intended by the inscription.

246.—*KLISI.* No. 285—Baḷagāṁve inscription of the 16th year of the Kaḷachurya era :—

śrīmat-Kaḷachurrya-varshada 16 neya Sarvvadhārisaṁvatsarada Vaiśākha-paurṇṇ [imā] Ādityavāra sōmagrahaṇa-saṁkramaṇa-vyatīpātad=amdu.

Sarvadhārin by the southern luni-solar system=Ś. 1090. For this year the date is irregular for the month of Vaiśākha. But in Chaitra of this year, the Mēsha-saṅkrānti took place at 12*gh.* 39*p.* (S.S.) or 9*gh.* 35*p.* (A.S.) after sunrise on Sunday, 24th March, A. D. 1168; and was perhaps observed (see § 28 above) on the next day, Monday, 25th March, A.D. 1168, on which day a lunar eclipse took place which was visible in India.

Sarvadhārin by the mean-sign system=Ś. 1086 or A.D. 1164. In the year next to this mean-sign [1] Sarvadhārin the *pūrṇimā* of the solar month Vaiśākha (*i.e.*, Vṛishabha or Vaikāśi) ended on 27th May, A.D. 1165; on this day there took place a lunar eclipse visible in India; and the Mithunasaṅkrānti which had occurred at 47*gh.* 24*p.* (S.S.) or 42*gh.* 28*p.* (A.S). after sunrise of the preceding day but one would

[1] There was no northern luni-solar Sarvadharin in that cycle of 60 years; it was *kshaya* or suppressed.

also be observed on this day (see § 28 above). The weekday however was Ṭhursday and not Sunday.

One of these two days, **Monday, 25th March, A.D. 1168**, or **Thursday, 27th May, A.D. 1165**, would be the one intended by the inscription. In the case of the former of these we would have to assume a mistake in the month; and in the case of the latter, a mistake in the weekday.

247.—*KLISI.* No. 293—Baḷagāṁve inscription of the 5th year of the Kaḷachurya Saṅkama :—

Saṅkamadēva-varshada 5 neya Vikāri-saṁvatsarada Vaiśākha-māsad=amāvāsye Sōmavāra Vṛishasaṁkramaṇa-vyatīpātad=aṁdu.

Vikārin=Ś. 1101 by the southern luni-solar system. For this year the date is irregular as Kielhorn has noted.

In the year following, the date is irregular for the month of Vaiśākha; for the *amāvāsyā* of this month ended at 40*gh.* 16*p.* after mean sunrise on Saturday, 26th April, A.D. 1180, while the Vṛishabha-saṅkrānti took place 2 days earlier on the 24th April (Thursday).

In the month Jyēshṭha, however, of the same year, the Mithuna-saṅkrānti took place at 40*gh.* 16*p.* (S.S.) or 35*gh.* 26*p.* (A.S.) after mean sunrise on 25th May, and would therefore be observed on the following day—**26th May, A.D. 1180**, which was a **Monday**, and on which day the *amāvāsyā* ended at 17*gh.* 51*p.* after mean sunrise.

There seems to be no doubt that this is the day intended by the inscription and that Vaiśākha and Vṛisha are mistakes for Jyēshṭha and Mithuna.

I:—Tropical Sankranti.

248.—*KLISI.* No. 169—Hulgūr inscription of the W. Chāḷukya Sōmēśvara I :—

Saka[n]ṛipakāḷ-ākrānta-saṁvatsara-śataṁga [!*] 984 neya Śubhakṛit-saṁvatsaraṁ pravarttise tad-varsh-ābhyantarada Pushya-bahuḷa-saptame Ādityavāramum=uttarāyaṇa-saṁkrāntiy=andu.

For Ś. 984=Śubhakṛit by the southern luni-solar system, Kielhorn gives 24th December, A.D. 1062 as the equivalent, noting that the weekday was Tuesday and not Sunday.

Śubhakrit by the northern luni-solar system=Ś. 984* or Ś. 982. In this year, Pushya-ba 7 ended at 10*gh.* 56*p.* on **Sunday, 17th December, A.D. 1060.** The tropical Makara-saṅkrānti took place in this year at about 41*gh.* after mean sunrise on 15th December, and was perhaps associated with the following day but one (see § 29 above).

This Sunday, therefore, is the day intended by the inscription.

249.—*KLISI.* No. 243—Paṭṭadakal inscription of the Sinda Chāvuṇḍa II:—

Saka-varshada sāsirad-eṁbhatta-nālkeneya Subhānu-saṁvatsarada Jēshṭha-suddha-paurṇṇamāsye Sōmavāra sōmagrahaṇa-vyatīpāta-saṁkramaṇada puṇya-tithiyal.

Ś. 1084†=Subhānu by the southern luni-solar system. In this year, there took place a lunar eclipse invisible in India on the *pūrṇimā* of *solar* Jyēshṭha (Mithuna or Āṇi) on Monday, 17th June, A.D. 1163. The tropical Mithuna-saṅkrānti took place at 24*gh.* 0*p.* after mean sunrise of the preceding Sunday and must have been associated (see § 29 above) with Monday. This day—**Monday, 17th June, A.D. 1163**—is therefore the one intended by the inscription.

250.—*KLISI.* No. 275—Tāḷgund inscription of the Kaḷachurya *Mahamaṇḍalēśvara* Bijjaṇa:—

Saka-varsham 1079 ney=Īśvara-saṁvatcharada Pushyada puṇṇami Sōmavāram=uttarāyaṇasaṁkramaṇa-vyatīpātad=aṁdu.

Ś. 1079=Īśvara by the southern luni-solar system. In this year, the tropical Makara-saṅkrānti took place at 21*gh.* 51*p.* after mean sunrise on **Monday, 16th December, A.D. 1157.** Pushya-su 15, too, began on this day at 55*gh.* 25*p.* after mean sunrise. This therefore seems to be the day intended by the inscription.

251.—*KLISI.* No. 291—Managōḷi inscription of the Kaḷachurya Saṅkama :—

Saṁkamadēva-varśada mūṛaneya Viḷa[ṁbi-saṁ] vatsarad=Āśāḍa-sudhdha 11 Ādityavāra dakshiṇāyanasaṁkramaṇa-parvva-nimittaṁ.

Vilamba by the southern luni-solar system=Ś. 1100. For this year, Kielhorn hesitatingly suggests 27th June, A.D. 1178 as the equivalent with the remark that the weekday was Tuesday and not Sunday.

In the year following this Vilamba, Āshāḍha-su 11 ended at 7*gh.* 56*p.* after mean sunrise on **Sunday, 17th June, A.D. 1179.** The tropical Karkāṭaka-saṅkrānti took place on the preceding day (16th June) at 24*gh.* after mean sunrise. This appears to me to be a better equivalent than the one suggested by Kielhorn.

M:—Saka dates from Kielhorn's List of Inscriptions of Northern India.

252.—*KLISI.* No. 348.—Bagumrā plates of the Gurjara Dadda II Praśāntarāga :—

Śakanṛipakāl-ātīta-saṁva[tsa]ra-śata-chatushṭayē paṁchadaś-ādhikē Yē(Jyē)shṭh-[ā]māvāsyā-su(sū)ryagrahe.

This date is irregular for Ś. 415 current and expired. In Ś. 415† however, there occurred a solar eclipse visible in India on (Sunday), **19th June, A D. 494,** on the *amāvāsyā* of what according to the usage embodied in Brahmagupta's verse *mēshādisthē savitari*, etc., was *adhika*-Jyēshṭha (*amānta*). This seems to be the day intended by the inscription.

253.—*KLISI.* No. 349—Ilāō plates of the Gurjara Dadda II Praśāntarāga :—

Śakanṛipakāl-ātīta-saṁvachchhara-śata-chatushṭayē sapta-daśādhikē Yē(Jyē)shṭh-[ā]māvāsyā-su(sū)rya-grahē.

In Ś. 417 expired, there took place solar eclipses on the *amāvāsyās* of both the *pūrṇimānta* and *amānta* Jyēshṭha —on 10th May and 8th June, A.D. 495; but none of these were visible in India.

In Ś. 417 current there took place a solar eclipse visible in India on **19th June, A.D. 494**, on the *amāvāsyā* of *adhika*-Jyēshṭha; see above. This seems to be the day intended by the inscription.

254.—*KLINI.* No. 376.—Kistnā district plates of Gāṇadēva of Koṇḍavīḍu :—

Śākē śaila-turaṁgam - āgni - śaśi - saṁkhyātē Yuvābdē śubhē māsē Bhādrapadē Vidhōr=grahadinē.

Ś. 1377=Yuvan by the southern luni-solar system; in this year there was no lunar eclipse in Bhādrapada. Ś. 1370=Yuvan by the northern luni-solar system; and in the month Bhādrapada of this year, which also falls within the mean-sign Yuvan, there took place a lunar eclipse visible in India on **12th September, A.D. 1448**. This perhaps is the day intended by the inscription.

For other 'irregular' Śaka dates in *KLINI.* see Nos. 82, 83 and 109 above.

N:—Chola Dates.

255.—Chōḷa Date No. 40; *Ep. Ind.* VI, p. 279.

Śaka-va[r*]shaṁbulu 1036 . . . . Dhanu-māsamuna śukla-pa[kshamu]na ēkāda[ś]iyu Budhavāramu nāṇḍu uttarāyaṇa-vyatīyipāta-nimittamuna.

Kielhorn gives Wednesday, 9th December, A.D. 1114 as the equivalent with the note that there was no *uttarāyaṇa-saṁkrānti* on that day.

It seems to me that *śukla-paksha* in the inscription is a mistake for *kṛishṇa-paksha*. In Ś. 1036 or A.D. 1114, ba-11 of Dhanus commenced at 43*gh.* 53*p.* after mean sunrise on **Wednesday, 23rd December, A.D. 1114**; on this day occurred the Makara-saṅkrānti according to the Brahma Siddhānta at 48*gh.* 53*p.* after mean sunrise. This day is, in my opinion, the day intended by the inscription.

256.—Chōḷa date No. 128; *Ep. Ind.* VIII, p. 271.

'In the **27th** year (*of the reign*) of the emperor of the three worlds, the glorious **Rājarājadēva**—on the day of **Pushya** which corresponded to a **Monday** and to the **fifteenth** *tithi* of [the second] fortnight of the month of Makara.'

In Makara, the *nakshatra* Pushya cannot occur combined with the fifteenth *tithi* of the second fortnight. 'Second' therefore should clearly be *first*; even with this correction, Kielhorn finds the date incorrect for the 27th year of Rājarāja's reign and proposes to change 27th to 21st. For this year, he gives Monday, 12th January, A.D. 1237 as the equivalent also noting that on that day there took place a lunar eclipse which was visible in India.

It seems to me most unlikely that the occurrence of a lunar eclipse would go unmentioned by the inscription; and besides in the 27th year of Rājarāja's reign, *i.e.*, in A.D. 1243, the *nakshatra* Pushya occurred in combination with su-15 on Monday, 25th January, A.D. 1244. In that year, the month Makara lasted up to and Kumbha began on, that Monday, on which the *nakshatra* Pushya ended at 23*gh.* 10*p.* after mean sunrise, and the *tithi* su-15 commenced at 34*gh.* 5*p.* after mean sunrise. There is no doubt that this is the day intended by the inscription, although, strictly speaking [1] it ought to have been described as falling in the month of Kumbha. For a similar instance, see Chola date No. 116 [2] in *Ep. Ind.* VIII, p. 267 and Kielhorn's remarks thereunder.

257.—Chōḷa date No. 100; *Ep. Ind.* VIII, p. 7:—

'In the 11th year (of the reign) of **Tribhuvanavira-Choladeva**—on the day of **Rohini**, which corresponded to a **Friday** and to the seventh *tithi* of the second fortnight of the month of Siṁha of the year Chitrabhānu.'

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[1] The Kumbha-saṅkrānti occurred at 42*gh.* 8*p.* (S.S.) after mean sunrise on Sunday, 24th January, 1241. It is possible, therefore, that the month of Kumbha might have been reckoned, following a usage analogous to the Bengal usage (see § 28 above) to begin on the next day but one—that is with Tuesday, 26th January; in this case, Monday, the 25th January would fall in the month of Makara and the wording of the date would be quite correct.

[2] In this instance, the *saṅkrānti* occurred at 36*gh.* 23*p.* after mean sunrise, and the next month might have, in this case also, been made to commence with the next day but one; in such a case the wording of this date too would be quite correct.

'If the Tribhuvanavīra-Chōḷadēva of this date were identical with Kulōttuṅga-Chōḷa III who bears the name Tribhuvanavīradēva,' writes Kielhorn, 'the date would fall in A.D. 1188; but for that year, it is in every respect incorrect. Between A.D. 1000 and 1500 the only day for which the date is correct is Friday, 23rd August, A.D. 1342 . . . . .' Upon the strength of this equivalent thus found, Kielhorn has set up a new Chōḷa King named Tribhuvanavīra-Chōḷa and makes him begin to reign in A.D. 1331, 11 years earlier than A.D. 1342 [=Ś. 1264=Chitrabhānu.]

In this connection it should be observed that excepting the above date, the last Chōḷa date obtained by Kielhorn is 10th February, A.D. 1274 (see list of Chōḷa dates in *Ep. Ind.* IX, p. 222) and that there is thus a gap of 57 years and more between this new king and the other known Chōḷa kings.

This in itself is suspicious; and the suspicion gains ground when we find that the above is the only date quotable of this king. When therefore I further find that the given date yields correct results for A.D. 1190, I cannot resist the conclusion that there was no such king as Tribhuvanavīra-Chōḷa who began to reign in A.D. 1341.

The eleventh year of the reign of Kulōttuṅga-Chōḷa III, who, as Kielhorn has reminded us above, bore the title of Tribhuvanavīra corresponds to A.D. 1189-1190. In the year A.D. 1190, the *tithi bahula-saptamī* of Siṁha ended at 5*gh.* 23*p.* after mean sunrise on **Friday, 24th August, A.D. 1190.** The *nakshatra* Rōhiṇī ended on this day at 22*gh.* 42*p.* after mean sunrise by the equal space system and the system of Garga, and about 3*gh.* earlier by the Brahma Siddhānta system. The cyclic year that corresponded to A.D. 1190 was not, however, Chitrabhānu but Sādhāraṇa by the southern luni-solar system.

258.—Chōḷa date No. 140; *Ep. Ind.* IX, p. 208:—

'In the 2[4]th year (*of the reign*) of the glorious **Raja-Rajarajadeva** on the day of **Sravana** which corresponded, to the fifth *tithi* and to a [**Wednesday**] of the first fortnight of the month of Vṛiśchika in this year.'

The 24th year of Rājarāja's reign corresponds to A.D. 1008; for this year the date is irregular. In the next year (see § 19 above), the *tithi* [Kārttika-]su 5 ended at 7*gh.* 24*p.* after mean sunrise on **Wednesday, 26th October, A.D. 1009**. On this day, the *nakshatra* Śravaṇa began, by the Brahma Siddhānta system, at 41*gh.* 2*p.* after mean sunrise, and by the other two systems about 15*gh.* later. The day too was in Vṛiśchika as the Vṛiśchika-saṅkrānti had already taken place at 53*gh.* 50*p.* (S.S.) or 49*gh.* 31*p.* (A.S.) after mean sunrise of the previous day. This, therefore, is the day intended by the inscription.

Kielhorn, finding the date irregular for A.D. 1008, has suggested that there is a mistake as to the weekday, and has therefore proposed Saturday, 6th November, A.D. 1008 as the equivalent.

259.—Chōḷa date No. 194; *Ep. Ind.* XI, p. 121:—

'In the **3rd** year (*of the reign*) of the glorious Vikrama-Chōḷa-deva on the day of **Uttara-Phalguni** which corresponded to a **Thursday** and to the **eighth** *tithi* of the first fortnight of the month of Mithuna.'

Vikrama-Chōḷa began to reign in A.D. 1118 (*Epig. Ind.* Vol. VII, p. 6) and his third regnal year would therefore correspond to A.D. 1121. In this year, the Mithuna-saṅkrānti took place at 24*gh.* 17*p.* (S.S.) or 19*gh.* 4*p.* (A.S.) after mean sunrise on 25th May. The month Mithuna therefore began on that day. In this Mithuna, the *tithi* su-8 ended at 41*gh.* 0*p.* and the *nakshatra* Uttarā Phalgunī at 54*gh.* 41*p.* after mean sunrise on **Thursday, 26th May, A.D. 1121.** This therefore is the equivalent of the given date.

[This date has been pronounced to be irregular by Jacobi in *Ep. Ind.* XI, p. 122.]

260.—Chōḷa date No. 227; *Ep. Ind.* XI, p. 243:—

'In the **5th** year (*of the reign*) of the emperor of the three worlds, the glorious **Vikrama-Choladeva**—on the day of **Rohini** which corresponded to a **Thursday** and to the thirteenth *tithi* of the second fortnight of the month of Mithuna.'

The 5th year of Vikrama-Chōḷa corresponds to A.D. 1123 for which year, as remarked by Mr. Sewell, the date is irregular. In the next year, A. D. 1124, in the month Mithuna, the *tithi* ba-13 ended at 3*gh.* 23*p.* and the *nakshatra* Rōhiṇi at 4*gh.* 54*p.* after mean sunrise on **Thursday, 12th June, A.D. 1124.** This therefore is the equivalent of the given date.

[This date has been declared by Mr. Sewell to be unsatisfactory in *Ep. Ind.* XI, p. 243.]

261.—Chōḷa date No. 196; *Ep. Ind.* XI, p. 122:—

"In the time of the **5th** year (*of the reign*) of **King Parakesarivarman** *alias* **Rajarajadeva**—on the day of **Uttarashadha**, which corresponded to a **Saturday** and to the third *tithi* of the first fortnight of the month of Vṛiśchika."

Prof. Jacobi proposes Friday, 24th November, A.D. 1150 as the equivalent and suggests that Saturday in the inscription is a mistake for Friday.

The 5th year of the reign of Rājarāja (who began to rule in A.D. 1146) can denote (see § 25 above) the year A.D. 1149. In this year, su-3 of Vṛiśchika commenced according to the Brahma Siddhānta, at 28*gh.* 7*p.* after mean sunrise on **Saturday, 5th November, A.D. 1149.** The *nakshatra* Uttarāshāḍhā ended at 4*gh.* 48*p.* by the unequal-space system of the Brahma Siddhānta and at 15*gh.* 56*p.* by the other two systems, after mean sunrise on that day. This therefore seems to be the day intended by the inscription.

262.—Chōḷa date No. 202; *Ep. Ind.* XI, p. 125:—

"In the time of the **6th** year (*of the reign*) of **King Rajakesarivarman** *alias* the emperor of the three worlds, the glorious **Virarajendra-Choladeva**—on the day of **Mrigasirsha**, which corresponded to a **Saturday** and to the **ninth** *tithi* of the second fortnight of the month of Siṁha."

Prof. Jacobi gives Saturday, 10th September A.D. 1183 as the equivalent with the note that the *tithi* that ended on that day 'was not the 9th but the 7th of the dark fortnight of Siṁha (Bhādrapada).' This is wrong as in that year the

month Siṁha began on 29th (or 28th or 30th) July and ended on 28th (or 27th or 29th) August. The equivalent proposed by Prof. Jacobi does not fall at all in the month of Siṁha.

The 6th year of the reign of Kulōttuṅga-Chōḷa III (who began to rule in A.D. 1178) can denote (see § 25 above) A.D. 1183. In this year, ba-9 of Siṁha ended at 42*gh.* 42*p.* after mean sunrise on **Saturday, 13th August, A.D. 1183.** The *nakshatra* Mṛigaśīrsha ended at 57*gh.* 30*p.* after mean sunrise on that day by the equal-space system and by the system of Garga and about 4*gh.* earlier by the unequal-space system of the Brahma Siddhānta. This therefore is the correct equivalent of the given date.

263.—Chōḷa date No. 240; *Ep. Ind.* XI, p. 249:—

"In the [**6th**] year (*of the reign*) of the emperor of the three worlds, the glorious **Rajarajadēva**—on the day of **Mula** which corresponded to a **Wednesday** and to the **fifth** *tithi* of the second fortnight of the month of Mēsha."

The 6th year of Rājarāja III's reign corresponds to A.D. 1222. In the *lunar* Mēsha or Chaitra at the end of this solar year, ba-5 began according to the Brahma Siddhānta at 4*gh.* 18*p.* after mean sunrise on **Wednesday, 22nd March, A.D. 1223.** On that day commenced the *nakshatra* Mūlā at 26*gh.* 4*p.* after mean sunrise by the Brahma Siddhānta system of unequal spaces and at 38*gh.* 43*p.* after mean sunrise by Garga's system of unequal spaces. This day therefore seems to be the one intended by the inscription.

[This date has been declared to be irregular by Mr. Sewell; *Ep. Ind.* XI, p. 250, footnote 1.] For other irregular Chōḷa dates, see Nos. 113-116 above.

After I had finished computing the dates given above, I became aware that some of them had been computed by Mr. Swamikannu Pillai in his paper entitled *Hints to workers in South Indian Chronology.*

In this paper, Mr. Pillai has given equivalents for 27 dates noted as irregular by Kielhorn in his *List of Inscriptions of Southern India*, as well as for some other Chōḷa and Pāṇḍya dates with which I am not now concerned. Of these 27 dates, eight, *viz.*, *KLISI.* Nos. 388-1, 392, 524, 526, 741, 860, 865 and 1078, have not been touched upon by me, as I was not able to make anything out of them. Of the remaining nineteen, for eight dates, *viz.*, *KLISI.* Nos. 359 383, 400, 467, 535, 571, 815 and 866, Mr. Pillai has proposed equivalents differing from mine; and for eleven dates—*viz.*, *KLISI.* Nos. 258, 361, 379, 384, 385, 388-2, 401, 428, 434, 520 and 731, he, too, has arrived at the same equivalents as those arrived at by me. It is thus very gratifying to find that in these instances the equivalents set forth by me have the approval of a chronologist like Mr. Pillai. As regards the eight dates for which the equivalents proposed by us two differ, I can only say that I have examined more than once the equivalents proposed, and have not as yet found a single instance where I could prefer Mr. Pillai's equivalent to mine. Perhaps this is but natural and so I leave the reader to judge between the merits of the two sets of equivalents proposed.[1]

[1] I must however warn the reader that Mr. Pillai's paper referred to contains several very bad mistakes; presumably they have crept in in consequence of sufficient care not having been taken in carrying it through the press.

APPENDIX A

CHRONOLOGY OF THE PĀṆḌYA KINGS

Prof. Kielhorn has published on pp. 301 ff. of the *Epigraphia Indica*, Vol. VI, 30 dates, with equivalents, of some Pāṇḍya kings. With the help of these dates and their calculated equivalents he has constructed a chronology of these kings and published it on pp. 314, 315.

Regarding these dates, he has thus written on p. 301 :—

" All these dates quote only regnal years, not years of any era ; and in a number of cases it was uncertain whether the dates connected with a particular name belonged to the reign of one king or to the reigns of two or more kings bearing the same name. How my results will fit into the history of the time to which the dates refer, others may decide ; I have been solely guided by the dates, and have not allowed myself to be influenced by other considerations. Though the dates do not quote years of any era, the fact that some of them, in addition to the week day, the *tithi* and the *nakshatra*, also give the corresponding solar day, has helped me greatly in ascertaining what I consider to be the proper European equivalents and makes me place great confidence in the results which I now put forward. The reader will understand this when he sees, that *e.g.*, for the date No. 1 there is only one single day in 500 years that would fully satisfy all the requirements of the original date."

In thus saying that there is but one single day between A.D. 1000 and 1500 that would fully satisfy all the requirements of the original date, Kielhorn has assumed (1) that the particulars of the original date were determined with the help of the Sūrya Siddhānta, (2) that the Bengal usage of determining the beginning of solar months does not apply to this date, and (3) that the *tithi* and the *nakshatra* cited are those that ended on the day. I have however shown above (§§ 43—47) that not only the Sūrya Siddhānta but the Ārya and Brahma Siddhāntas also were then used for the construction of the almanac, that the Bengal, Orissa and Madras usages of determining the beginning of the solar month were all three current at the same time and place, and that the *tithis* and the *nakshatras* cited are sometimes those that began on the day and not those that ended on it. The above assumptions therefore of Kielhorn

are not justified ; they should be discarded and the dates computed again bearing in mind all the possibilities set forth above.

Taking then the date No. 1 and calculating its equivalent with the help of the Brahma Siddhānta for the year Ky. 4166 (A.D. 1065—1066), I find that the Dhanus-saṅkrānti took place in that year at 49*gh.* 47*p.* after mean sunrise on **23rd November, A.D. 1065.** That day therefore was, according to the Orissa rule, the first of Dhanus and the fourth of Dhanus was **26th November, A.D. 1065,** which was a Saturday, and on which day ba-11 ended at 49*gh.* 52*p.* after mean sunrise and the *nakshatra* Svāti ended, according to the system of Garga, at 42*gh.* 24*p.* and according to the system of the Brahma Siddhānta, at 31*gh.* 57*p.* after mean sunrise while according to the equal-space system it began at 11*gh.* 47*p.* after mean sunrise. This day therefore satisfies all the requirements of the original date.

Calculating similarly the same date for the year Ky. 4193 (A.D. 1092—93), I find that in that year the Dhanus-saṅkrānti took place at 51*gh.* 53*p.* (S.S.) or 37*gh.* 25*p.* (A.S.) after mean sunrise on **24th November, A.D. 1092.** According to the Orissa usage, that day was the first of Dhanus and the fourth of Dhanus was **27th November, A.D. 1092,** which was also a Saturday. On this latter day, ba-11 began at 22*gh.* after mean sunrise and the *nakshatra* Svāti too began, according to the equal-space system and the system of Garga, at 36*gh.* 26*p.* after mean sunrise. According to the system of Brahmagupta the *nakshatra* Svāti began on that day and also ended at 56*gh.* after mean sunrise. This day too therefore satisfies all the requirements of the original date.

Thus, instead of there being but one single day between A.D. 1000—1500 which satisfies all the requirements of the date No. 1, we have found two different days between A.D. 1000—1200 each of which satisfies all the requirements of the original date.

Taking then these two dates as bases we may work forwards, as Kielhorn has done, all the dates, numbering 21 in all, which Kielhorn has mentioned on pp. 226, 227 of the *Epigraphia Indica*, Vol. IX, as belonging to the first four Pāṇḍyan kings ; and we will find that we get good results for all the 21 dates in both the series beginning with A.D. 1065 and A.D. 1092. I append here the equivalents [1] of these dates :—

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[1] For the sake of convenience, the following abbreviations have been used :—
t. for *tithi*,
n. for *nakshatra*,
sam. for *saṅkrānti*,
b. for began,
e. for ended.
The phrase ' after mean sunrise ' should be understood after the *ghaṭikās* and *palas*

No. of Date.	Equivalents—series 1065.	Equivalents—series 1092.
1	**Saturday, 26th November, 1065**; *t.e.* 49—52; *n.b.* 11—47; *n.e.* 42—24; *n.e.* 31—57. Dhanus-sam. at 49—47 on **3rd November, 1065.**	**Saturday, 27th November, 1092**; *t.b.* 22*gh.*; *n.b.* 36—26; *n.b.* 36—26; *n.b.* 26—26 and *e.* 56—23; Dhanus-sam. at 37—25 (A.S.) or 51—53 (S.S.) on **24th November, 1092.**
2	**Thursday, 23rd February, 1055**; *t.e.* 55—17; *n.e.* 25—5; *n.e.* before sunrise; *n.e.* before sunrise. Mīna-sam. at 32—17 on **20th February, 1055.**	**Thursday, 24th February, 1081**; *t.b.* 10*gh.*; *n.e.* 38—39; *n.e.* 8—17; *n.e.* before sunrise; sam. at 35—3 (A.S.) or 36—18 (S.S.) on **21st February, 1081.**
44	**Wednesday, 26th March, 1068**; *t.e.* 44—0; *n.b.* 24—13; *n.e.* 54—50; *n.e.* 50—41; Mēsha-sam. at 15—2 on **22nd March, 1068.**	**Wednesday, 28th March, 1095**; *t.e.* 58 *gh.*; *n.b.* 40—6; *n.b.* 9—45; *n.e.* 57—13.
45	**Thursday, 7th October, 1053**; *t.e.* 52—46; *n.e.* 44—43; *n.e.* 44—43; *n.e.* 38—54; sam. at 18—58 on **25th September, 1053.**	**Thursday, 8th October, 1080**; *t.b.* 23 *gh.*; *n.b.* 12—43; *n.b.* 12—43; *n.b.* 7—35.
3	**Monday, 1st September, 1085**; *t.e.* 50—9; *n.b.* 13—19; *n.* current for the whole of that day; *n.e.* 58—38; sam. at 7—32 on **26th August, 1085.**	**Monday, 2nd September, 1112**; *t.b.* 23 *gh.*; *n.b.* 36 *gh.*; *n.b.* 5—35; *n.* current for the whole of that day; sam. at 7—7 (A.S.) or 12—58 (S.S.) on **27th August, 1112.**
4	**Monday, 16th February, 1086**; *t.b.* 23—35; *n.e.* 58—18; *n.e.* 27—38; *n.e.* 29—25; sam. at 45—53 on **21st January, 1086.**	**Monday, 17th February, 1113**; *t.b.* 53 *gh.*; *n.b.* 24—56; *n.e.* 55—18; *n.e.* 57 *gh.*; Kumbha-sam. at 48—9 (A.S.) or 48—20 (S.S.) on **22nd January, 1113.**
5	**Friday, 25th March, 1076**; *t.b.* 18—18; *n.e.* 47—54; *n.e.* 47—54; *n.e.* 36—22; sam. at 1—0 on **22nd March, 1076.**	**Friday, 27th March, 1103**; *t.b.* 34 *gh.*; *n.b.* 13—40; *n.* current for the whole day; *n.* current for the whole day; sam. at 20—42 (A.S.) or 23—30 (S.S.) on **24th March, 1103.**

given above as marking the occurrence of the *saṅkrānti* or the beginning or ending of *tithis* and *nakshatras*.

The equivalents in column 2 have been calculated for the Brahma Siddhānta by means of Jacobi's Special Tables; those in column 3 have been calculated by means of his General Tables.

The beginning of solar months should everywhere be determined according to the Orissa rule.

The figures given in columns 2 and 3 refer to *ghaṭikās* and *palas*.

The figures that mark the beginning (or ending) of *nakshatras* are always given firstly, according to the equal-space system, secondly according to the system of Garga, and thirdly according to the system of Brahmagupta.

No. of Date.	Equivalents—series 1065.	Equivalents—series 1092.
6	**Monday, 10th March, 1074**; *t.e.* 10—30; *n.b.* 0—17; *n.b.* 0—17; *n.e.* 55—44; sam. at 28—56 on **20th February, 1074.**	**Monday, 11th March, 1101**; *t.e.* 22 *gh.*; *n.b.* 12—9; *n.b.* 12—9; *n.b.* 7—0.
46	**Tuesday, 30th November, 1081**; *t.b.* 20—32; *n.e.* 33—37; *n.e.* 33—37; *n.e.* 22—5; sam. at 55—18 on **23rd November, 1081.**	**Tuesday, 1st December, 1108**; *t.b.* 47 *gh.*; *n.e.* 59—0; *n.e.* 59—0; *n.e.* 47—34
7,8	**Wednesday, 15th January, 1102**; *t.b.* 11—23; *n.e.* 45—52; *n.e.* 45—52; *n.e.* 24—25. Makara-sam. at 28—22 on **23rd December, 1101.**	**Wednesday, 16th January, 1129**; *t.b.* 35 *gh.*; *n.e.* 58—20; *n.e.* 58—20; *n.e.* 46—10; Makara-sam. at 28—13 (A.S.) or 29—58 (S.S.) on **24th December, 1128.**
9	**Wednesday, 11th June, 1102**; *t.e.* 7—2; *n.e.* 46—8; *n.e.* 46—8; *n.e.* 45—25; sam. at 33—6 on **24th May, 1102.**	**Wednesday, 12th June, 1129**; *t.e.* 19 *gh.*; *n.b.* 5—27 (all systems); Mithuna-sam. at 27—30 (A.S.) or 31—38 (S.S.) on **25th May, 1129.**
10	**Sunday, 22nd April, 1100**; Vrishabha-sam. on that day at 26—16; *n.b.* 2—58; *n.b.* 2—58; *n.e.* 54—31.	**Sunday, 24th April, 1127**; Vrishabha-sam. at 28—44 (A.S.) or 32—1, (S.S.) on this day; *n.b.* 29—37; *n.b.* 29—37; *n.b.* 25—40.
63	**Sunday, 4th May, 1096**; *t.e.* 42—50; *n.e.* 34—57; *n.e.* 34—57; *n.e.* 26—19; sam. at 25—15 on **22nd April, 1096.**	**Sunday, 6th May, 1123**; *t.e.* 55*gh.*; *n.e.* 43—17; *n.e.* 43—17; *n.e.* 39—20; sam. at 26—39 (A.S.) or 30—6 (S.S). on **24th April, 1123.**
11	**Thursday, 24th March, 1104**; *t.e.* 36—31; *n.b.* 3—6; *n.b.* 3—6; *n.b.* 6—0; sam. at 33—37 on **22nd March, 1104.**	**Thursday, 26th March, 1131**; *t.e.* 57 *gh.*; *n.b.* 22—59; *n.*(*b.* &)*e.* 53—21; *n.*(*b.* &)*e.* 56—23; sam. at 35—11 (A.S.) or 38—13 (S.S.) on **24th March, 1131.**
12	**Saturday, 16th April, 1104**; *t.e.* 21—51; *n.e.* 27—42; *n.e.* before sunrise; *n.e.* before sunrise.	**Saturday, 18th April, 1131**; *t.e.* 35 *gh.*; *n.e.* 41—0; *n.e.* 10—30; *n.e.* 2—40 *before* sunrise.
13	**Wednesday, 26th October, 1104**; *t.b.* 7—52; *n.e.* 59—3; *n.e.* 59—3; *n.e.* 33—55; sam. at 12—53 on **25th October, 1104.**	**Wednesday, 29th October, 1131**; *t.b.* 15 *gh.*; *n.e.* 57—38; *n.e.* 57—38; *n.e.* 42—35; sam. on **27th October, 1131.**
14	**Tuesday, 26th April, 1110**; *t.e.* 12—40; *n.e.* 14—15; *n.e.* 14—15; *n.e.* 9—21; sam. at 3—27 on **23rd April, 1110.**	**Tuesday, 27th April, 1137**; *t.e.* 21*gh.*; *n.e.* 25—8; *n.e.* 25—8; *n.e.* 20—7; Vrishabha-sam. at 3—56 (A.S.) or 7—27 (S.S.) on **24th April, 1137.**

No. of Date.	Equivalents—series 1065.	Equivalents—series 1092.
15	**Sunday, 12th June, 1110**; *t.e.* 40—34; *n.e.* 12—9 (all systems); sam. at 27—9 on **24th May, 1110.**	**Sunday, 13th June, 1137**; *t.e.* 55 *gh.*; *n.e.* 29*gh.* (all systems).
16	**Wednesday, 26th April, 1111**; *t. e.* 27—57; *n.e.* 35—36; *n.e.* 35—36; *n.e.* 23—20; sam. at 18—57 on **23rd April, 1111.**	**Wednesday, 27th April, 1138**; *t.e.* 48*gh.*; *n.e.* 56—48; *n.e.* 56—48; *n.e.* 43—40; Vrishabha-sam at 19—28 (A.S.) or 23—58 (S.S.) on **24th April, 1138.**
17	**Sunday, 4th October, 1108**; *t.e.* 42—41; *n.b.* 19—25; *n.b.* 19—25; *n.b.* 10—45; sam. at 27—9 on **25th September, 1108.**	**Sunday, 6th October, 1135**; *t.b.* 12*gh.*; *n.b.* 42—22; *n.b.* 42—23; *n.b.* 38—5.
18	**Thursday, 27th July, 1111**; *t.b.* 0—40; *n.b.* 4—40 (all systems); *Simha*-saṅkrānti at 48—23 on **26th July, 1111.**	**Thursday, 28th July, 1138**; *t.b.* 22*gh.*; *n.b.* 21—19 (all systems); Simha-saṅkrānti at 48—30 (A.S.) or 55—4 (S.S.) on **27th July, 1138.**

In No. 9, I have adopted Kielhorn's emendation of Mithuna instead of Mīna, and in No. 17 his emendation of Kanyā into Tulā. In No. 18, Kielhorn supposes that there is a mistake in the weekday, Thursday being wrongly quoted instead of Tuesday; I am on the other hand inclined to believe that the month Karkaṭaka is wrongly cited instead of Siṁha [1] (comp. No. 17 above) and have calculated the equivalents on this supposition. Lastly, in No. 45, Kielhorn who does not get a satisfactory result for the year cited, suggests that there is a mistake in the regnal year, while I have, above, got satisfactory results for the year cited and see no necessity for any emendation.

It will be seen therefore that instead of there being but one equivalent between A.D. 1000 and 1500 for date No. 1, there are two equivalents of the same date between A.D. 1000 and 1200. And in the same period, there are at least two other years, Ky. 4220 and Ky. 4277, which also yield satisfactory results, for date No. 1. And not only that, but these two years may be used as bases for calculating the series of 21 dates which Kielhorn apportions to the first four Pāṇḍyan kings; and in these cases, too, we will get a series of equivalents which will satisfy the requirements of the given date.

[1] I may however observe that both the equivalents given above for this date will fall in the month of Karkataka itself if we determine the beginning of the solar months according to the Bengal rule. According to this rule, the month Simha began in one case on 28th July, 1111, and in the other case, on 29th July, 1138.

And finally, in these series too, the date No. 45 yields satisfactory results for the year cited and needs no emendation.

So far as regards the date No. 1. The date No. 4 too has many equivalents in the period between A.D. 1050 and 1250, and every one of these equivalents can be made the starting point of a series of dates which are all satisfactory equivalents for the dates of the second Pāṇḍya king. The same also is the case with date No. 7.

At what period then did these Pāṇḍya kings really rule? Kielhorn's equivalents, as he has expressly informed us, have been determined solely with the help of the astronomical details given in the date and have not been influenced by historical or other considerations. The same is the case with the other equivalents that I have given or indicated above.

Kielhorn has in calculating the above 21 dates assumed that the date No. 1 is earlier than date No. 3, that this is earlier than date No. 7 and that this last date is earlier than date No. 11. In other words, he has assumed that the Pāṇḍya kings Jaṭāvarman Kulaśēkhara, Māravarman Sundara-Pāṇḍya I, Māravarman Sundara-Pāṇḍya II, and Jaṭāvarman Sundara-Pāṇḍya succeeded each other in the order named. I too have in the equivalents given above kept to these assumptions, although as a matter of fact there are no grounds for justifying such an assumption. It is, on the contrary, possible without much difficulty to construct chronologies (more than one in number for the period between A.D. 1000—1500) beginning with Māravarman Sundara-Pāṇḍya I or Māravarman Sundara-Pāṇḍya II, etc., in fact, for every one of the 24 possible different arrangements of these kings.

Kielhorn's attempt therefore at constructing a chronology of the Pāṇḍya kings without the help of historical evidence and solely on the strength of the astronomical details supplied by the dates must be pronounced a failure. The equivalents[1] proposed by him should be ignored, and the whole question laid on one side until historical evidence is forthcoming about the time when these kings reigned.

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[1] The fact that date No. 45 does not yield satisfactory results for Kielhorn's starting date for No. 1 is in itself enough to show that Kielhorn's equivalents for the dates of the first Pāṇḍya king are not the correct ones. It will be observed that this date yields satisfactory results in every one of the series referred to above by me. Date No. 102 (*Epig. Ind. XI.*, p. 256) similarly yields correct results for the series 1065.